Gordon Institute of Business Science
University of Pretoria

The influence of digital transformation on leadership in state-owned enterprises

Jacobus Marthinus Venter
20044748

A research project submitted to the Gordon Institute of Business Science, University of Pretoria, in partial fulfilment of the requirements for the degree of Master of Business Administration

7 November 2018

Abstract

The world is evolving or to a large extend has evolved into a digital age that requires organisations to re-evaluate their strategies, business models, systems, process and competences to adapt in a changing business environment. Public organisations (which include SOEs) are facing disruption to their core tasks due to new developments, but they are slow to react and it is questioned if these organisations are flexible enough to survive these new developments in the market.

This study explores the leadership environment, the leadership roles and the leadership skills in SOEs in the context of digital transformation. Thirteen qualitative, in-depth, semi-structured interviews were conducted with executive leaders in South African state-owned enterprises (SOEs) to collect research data for analysis. The study found that the SOE business environment as it pertains to strategy, business models, culture, processes and structure will undergo significant change in a digitally transformed environment and further identifies the role that leaders must play as well as the skills they must attain for a digitally transformed business environment.

Key findings from the study was summarised in a conceptual framework of digital leadership that may enable SOE leaders to prepare for and lead in a digitally transformed business environment.

Keywords

Digital transformation, Leadership, State-Owned Enterprise, Leadership skill, Leadership role

Declaration

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

_____

Jacobus Marthinus Venter

7 November 2018

Contents

List of tables

List of figures

Chapter 1: Introduction to the Research Problem

1.1 Introduction

This research study attempts to explore the influence digital transformation has on the leadership environment, leadership role and leadership competences in the public sector with particular focus on state-owned enterprises (SOEs).

This chapter provides the background and context of the research problem. It further introduces and defines the research problem and the need for this research and finally, defines the scope and research objectives of the study.

1.2 Background to the Research Problem

State-owned enterprises (SOEs), also referred to as public entities, are independent bodies or companies that are owned by government, either in part or in full. They perform an explicit function and are established and function in accordance with specific national legislation (OECD, 2015; The Public Sector Research Centre, 2015).

The South African economy was mainly resource-based during the 20th century, comprising mining and the export of commodities such as diamonds, gold, iron, coal, aluminium and manganese. Accordingly, the state established companies for the processing of resources in an effort to move away from the dependency on mining and foreign companies, and to enable the diversification of the industrial economy. Eskom, for instance, was established to provide the resource processing industry with a reliable energy supply; and Transnet was established to provide transportation services for the same industry. After the national elections, and the change in ruling party in 1994, the South African Government adopted policies for the privatisation of the state's stake in SOEs but in 2004, it changed this approach and decided to maintain ownership in key strategic SOEs with specific mandates to grow the economy (Department of Public Enterprises, 2014). This placed pressure on the SOEs as their business operations struggled to support the mandates although positive outcomes were achieved that benefitted the economy. The state recognises SOEs as instruments to drive economic development with a focus on their financial sustainability and to enhance their impact of suppliers and customers (OECD, 2015). SOEs have an essential role in the development of an economy but are often plagued by political interference and unachievable mandates which result in weak managerial accountability and consequently also weak performance (OECD, 2015).

South African SOEs are grouped into specific categories or schedules based on the function they perform, the industry they operate in and the terms of their incorporation. Schedule 1 entities are constitutional institutions. Schedule 2 entities are main public entities that are intended to produce profits, announce dividends and operate in competitive market conditions. Schedule 3B and 3D entities are government commercial enterprises that produce income and are either government-funded or self-funded. Schedule 3A and 3C entities have a mandate to accomplish an explicit social or economic obligation of government and rely on government funding. Schedule 2 entities have the most autonomy and have extensive borrowing power while Schedule 3B and 3D entities have less autonomy and limited borrowing power and Schedule 3A and 3C entities have the least autonomy (Department of National Treasury, 2013, 2018; Public Finance Management Act 1999, 2017).

Public organisations do not focus on profit maximisation. Alford and Greve (2017) suggest that management in public entities need to strategically focus on creating and refining the value proposition for the public through stakeholder and citizen engagement rather than focusing on the content of strategy to achieve performance and outcomes (Alford & Greve, 2017). Belloc (2014) argued that inefficiencies in SOEs are not due, directly, to government ownership but instead due to culture, legislation and political factors. Belloc (2014) further proposes that government ownership can have a positive influence on SOE innovation through research financing without the pressure of profit and revenue expectations, higher tolerance for risk and uncertainty than private players and easier collaborative engagement with other entities.

Public-sector strategy literature has over the years explored and elaborated on various strategy models, key among which has been New Public Management (NPM) (Greve, 2015; Hood, 1991) with the focus on efficiency, effectiveness and customer centricity (Tassabehji, Hackney, & Popovič, 2016). NPM developed from the application of private sector strategy concepts to the public sector. Greve (2015) highlights that the New Public Management framework and way of thinking is being replaced by new conceptual alternatives to NPM in the form of Digital-Era Governance, Public Value Management and Collaborative Governance (Bryson, Crosby, & Bloomberg, 2014; Greve, 2015). These alternative concepts consider specific areas of evolution in public management practices such as transparency, social media, shared services, strategy, performance governance, innovation, networks, collaboration and partnerships. Tassabehji et al. (2016) further state that institutional entrepreneurship could be considered by the public sector as a way to accomplish transformation.

Organisational and public administration leadership research increasingly highlights that the current leadership models do not adequately describe the leadership challenges experienced in today's complex environments as most of these studies are based on classical leadership theory (Murphy, Rhodes, Meek, & Denyer, 2017). Leadership research and literature can be broadly summarised into five predominant theories, being "classical management and role theory, transactional leadership theory, transformational leadership theory, collaborative leadership theory and ethical leadership theory" (Van Wart, 2013b, p. 553), each of which can also be linked to a main research period. Van Wart (2013b) further defines five roles that broadly relate to these leadership theories, as "(1) leading for results, (2) leading followers, (3) leading organisations, (4) leading systems and (5) leading with values" (Van Wart, 2013b, p.555).

The National Development Plan 2030 (NDP) developed by the National Planning Commission, which was appointed by the President of South Africa in 2010, discusses the purpose and mandate of SOEs in contributing to the development of the South African economy, identifies critical challenges with SOEs and makes proposals for improved social and economic performance. "SOEs are central to advancing national objectives through providing economic and social infrastructure" (National Planning Commision, 2011, p. 438). The NDP recognises that developments in the global and local economy over the previous decade have uncovered weaknesses in SOEs in relation to accountability due to political interference and complex processes. Infrastructure provisioning was found to be inadequate which contributed to low levels of investment. The NDP recognises that some state-owned enterprises have performed poorly. Reasons highlighted for poor performance and lack of accountability in SOEs are frequency of change in leadership, complex governance structures and being expected to address multiple different priorities with limited capacity and resources (National Planning Commission, 2011).

SOEs are generally created to address a specific gap in the market that cannot be addressed by either government itself or the private sector. Part of the role of SOEs is training and development of skills needed to drive economic development. Clear, consistently enforced public-interest mandates and simplified governance structures are identified as a solution to address lack of accountability (National Planning Commission, 2011). Herein lies the main purpose of SOEs to serve the public interest and it aligns with strategy literature in expressing the importance of clear vision and purpose to achieve results. Further, the requirement for transparency on performance contracts and objectives of SOEs as agreed with the relevant shareholder departments and the

willingness for these to be able to hold up to public scrutiny aligns with the evolution of public management literature. Stable leadership is an essential pre-requisite to achieving sustained performance and in SOEs achieving their developmental potential. While the increased competition, collaboration and partnerships with other public and private enterprises may improve SOE performance, especially in areas where SOEs cannot meet market demand, and this will result in reduced pricing and improved consumer choice, this may also result in increased pressure on the financial viability of SOEs. Further challenges for SOEs result from the changing environment where (1) government and the market changes over time result in the reason an SOE was created not being relevant anymore due to policy changes or where the requirement can be fulfilled without public-sector intervention, (2) the SOE's focus shifted over time to remain sustainable in response to changing market conditions, but does not serve the public interest any longer. This aligns to the requirement for a regular review of SOE mandates as recommended in the NDP (National Planning Commission, 2011).

Recent leadership research investigated the relationships between leadership and information and communication technologies (ICTs). However, these studies note that the advances of technologies and their adoption in business has progressed at much greater pace than associated leadership research and literature (Avolio, Sosik, Kahai, & Baker, 2014). Literature on the adoption of ICT in the public sector has been very focused on how inefficiencies of bureaucracy can be reduced with technology; however, Cordella and Tempini (2015) argue that ICT can enhance efficiency by supporting coordination in bureaucratic systems.

Schwarzmüller, Brosi, Duman, and Welpe (2018) note that technology will not replace leadership actions but may support it. Most leadership studies that investigate the relationships between leadership and ICT have been focused on the impact that implementation of ICT has had on leadership. Although wide-ranging leadership inferences can be drawn from previous studies, there is a very limited comprehension of the latent impact of digital technologies on leadership dynamics. This limited understanding reduces to being largely non-existent in the public sector context (Avolio et al., 2014; Van Wart, Roman, Wang, & Liu, 2017).

SOEs find themselves between the spheres of public administration and private organisations with elements of both. SOEs are businesses that are owned by the state, but which operate closer to the private organisation sphere. Leaders in these organisations are challenged by forces from both spheres. While substantial research has been conducted on both public administration leadership and organisational

leadership, respectively, the research exploring a middle ground between the two (where SOEs operate) is limited (Van Wart, 2013a).

The world is evolving or to a large extend has evolved into a digital age that requires organisations to re-evaluate their strategies, business models, systems, process and competences to adapt in a changing business environment. Public organisations (which include SOEs) are facing disruption to their core tasks due to new developments, but they are slow to react and it is questioned, if these organisations are flexible enough to survive these new developments in the market (Janssen & van der Voort, 2016).

This study attempts to contribute to this void by exploring the influence of digital transformation on leadership in state-owned enterprises.

1.3 Research Problem

South African State-Owned Enterprises (SOEs) have historically been at the forefront of their respective industries due to various factors. In the last few years, many of these SOEs have been reported to be performing poorly and very few are still at the cutting edge of their respective industries. It is proposed that this is due to the lack of agility and willingness to adopt changes within the volatile and increasingly complex macro- and operating environments.

With the transformation to the digital economy of the information age, SOEs face numerous challenges as they are expected to achieve more with less at a faster pace than ever before (Fernandez, Cho, & Perry, 2010) due to increased volatility, uncertainty, complexity and ambiguity (collectively termed VUCA, originally coined by the US Military) (Lawrence, 2013), and they lack the urgency and agility to keep up with the pace of change (Dowdy, Rieckhoff, & Maxwell, 2017). First, volatility, in this context, refers to the pace and nature of change brought about by more demanding and better-informed customers and rapid technology advancements. Second, uncertainty refers to the inability to predict the future business environment due to its volatility. Third, complexity refers to the lack of clarity on cause-and-effect associations and difficulty interpreting the environment due to interdependence of multiple components. Last, ambiguity refers to confusion of actions to take in the presence of adequate information. Internal resistance to change, unwillingness of leadership to take risk, functional silos and micro-management are identified as some of the challenges faced by SOEs in the VUCA environment (Dowdy et al., 2017).

Technology is changing at an increasingly rapid pace and business as well as SOEs are required to become agile and adaptive to stay relevant in this chaotic and turbulent business environment. It is imperative for businesses to have or develop a digital transformation strategy to explore the potential benefits of digital technologies (Matt, Hess, & Benlian, 2015) or a digital business strategy to utilise digital resources to create new and/or different value propositions (Bharadwaj, El Sawy, Pavlou, & Venkatraman, 2013), if they want to remain sustainable in the future. The digital business strategy defines the future vision in terms of dynamic business models aimed at offering diversified products using digital technologies, while a digital transformation strategy defines the transformation roadmap of the organisation for the integration and utilisation of digital technologies in all areas of the business (Hess, Benlian, Matt, & Wiesböck, 2016). This report will investigate a combined approach, where organisations reflect the future vision for digital business in conjunction with other strategic objectives in their corporate strategy, and incorporate the digital transformation to reflect how the strategy will be implemented digitally and not as separate focus areas. This research will further investigate entrenching digital orientation in all areas of the business, which contrasts with some views in research literature that calls for a standalone digital transformation strategy (Hess et al., 2016).

Many South African SOEs recognise the future as digital, acknowledging that their business environments are changing due to digital technology evolution; and they have defined strategies to develop digital skills for this future, to leverage new technologies and pursue opportunities offered by technologies such as 5G, cloud infrastructure, big data analytics, artificial intelligence and machine learning (Air Traffic & Navigation Services SOC Limited, 2015; Broadband Infraco, 2016; Sentech SOC Limited, 2017; South African Broadcasting Corporation, 2017; South African Post Office, 2016; State Information Technology Agency, 2017; Telkom SOC Limited, 2017; Transnet SOC Limited, 2017). Most of these SOEs mention leadership development programmes but the question remains whether the right leadership skills will be developed to respond successfully to the changing business environment.

The South African Government is also realising the need for ICT sector transformation to accelerate economic growth and enable social and economic inclusivity. The National e-Strategy (Department of Telecommunications and Postal Services, 2017) identifies the digital society underpinned by “an ecosystem of enabling policies, infrastructure, universal access, security, content, innovation and skills” (Department of Telecommunications and Postal Services, 2017, p.7). A specific emphasis is placed on

digital skills development to enable economic growth and drive innovation. The e-Strategy's long-term focus is on transitioning the economy to the Digital Industrial Revolution and it identifies the convergence and the cumulative effect of social media, internet-of-things (IoT), cloud computing, mobile, customer experience, big data analytics, and IT security as the most important global trends. Government leadership as a user, and by extension the SOEs as implementers, are recognised as central to achieving the Digital Society and the Digital Industrial Revolution (Department of Telecommunications and Postal Services, 2017).

State-owned enterprises experience many barriers to organisational innovation that include, but are not limited to bureaucracy, administrative burdens, inadequate incentives to promote innovation, cultural resistance to change and short-term financial focus (Moussa, McMurray, & Muenjohn, 2018). The public sector as bureaucratic organisations are constantly viewed as being inefficient and inflexible (Campbell, 2018). Nylén and Holmström (2015) note that existing research on technological innovation in organisations does not address the micro-level requirements for managing digital innovation. Recent research highlights that there is an inconsistency between the academic and business understanding of public sector innovation, and it highlights that innovation is mostly dependant on leadership and competence (Moussa et al., 2018).

Research presents evidence that there is a difference between public sector leadership and private sector leadership (Andersen, 2010). However, research on leadership in the public sector is quite limited especially where the focus is on leadership as dependant variable (Hansen & Villadsen, 2010), with the independent variable being digital transformation in this study.

The research problem explores how SOEs that have been seemingly slow to adapt (Meier & O'Toole, 2011), are dealing with this disruptive business environment from a leadership perspective.

The literature review highlights what is known regarding leadership in the context of digital transformation, describes and analyses different factors of digital transformation and reflects on a wide array of leadership theory applicable to digital transformation.

However, it is not clear how digital transformation will impact leadership in the context of state-owned enterprises. Therefore, there is an opportunity to address this void in leadership research in an attempt to gain a greater understanding and make recommendations to these businesses.

This study seeks to answer the question: “How does digital transformation influence the leadership environment, roles and skills of SOE leaders?”

1.4 Research Objectives

The research will investigate how state-owned enterprises deal with digital transformation and how they go about implementing their digital business strategy. The focus will be on how the leadership roles and skills are affected in executing this strategy.

Research objective 1:

The first research objective is to explore how the business environment changes for SOEs due to digitalisation in terms of systems, processes, structure, risk, challenges and opportunities.

Research objective 2:

As a second objective, the researcher will explore how the leadership role changes in SOEs in the digital business environment.

Research objective 3:

Lastly, the shift in leadership competences required by SOEs in the digital business environment will be explored.

1.5 Scope of the Research and Delimitations

The scope of this study is forward-looking to identify the shifts in leadership required for emerging leaders to be effective in SOEs in the context of the business world evolving to a digital future.

This explorative study will take an inductive approach and be limited to seven state-owned enterprises in the information and communication technology sector because of limited access to interview candidates and these companies’ businesses are heavily impacted by digitalisation.

1.6 Significance of the Research

This research study intends to improve the understanding of leadership dynamics at play in SOEs and identify the leadership qualities required in SOEs in future to deal with the complex and ever-changing business environment in the digital age.

In terms of business contribution, this study further identifies training, development and recruitment interventions that SOEs need to address to ensure they have capable leadership that will be able to manage effectively in a digitally transformed business environment. It further highlights findings that might be applicable to other public sector organisations.

In terms of academic contribution, the study attempts to create a link between public leadership research and digital leadership research with findings that are applicable to both fields.

1.7 Assumptions and Limitations

It was assumed that no regulatory or strategic changes would occur in the business environment of the targeted state-owned enterprises for the duration of the study. Further, it was assumed that the researcher could gain timeous access to the interview candidates in the target organisations and that the responses to interview questions were honest.

The respondents in the interview were aware that the researcher was an employee at a state-owned enterprise, which potentially could have influenced their responses. The researcher conducted all the semi-structured interviews, which presents a challenge in prevention of bias and subjectivity.

1.8 Structure

This document follows the layout of a research report. Chapter 2 contains the literature review which discusses existing academic literature related to leadership in digital transformation, digital strategy, leadership adaptability in the digital environment, leadership roles and leadership skills. Chapter 3 identifies the aim of the study by discussing the three research questions of the study. Chapter 4 describes the research methodology and the approaches taken to gather and analyse the data. The results from the interviews conducted are presented in Chapter 5. Chapter 6 discusses the analysis of the results in relation to the literature review and research objectives. Chapter 7 concludes the report with contributions to research, recommendations for application in the business and academic environments and proposed future areas of research.

Chapter 2: Literature Review

2.1 Introduction

This chapter identifies the most current and topical research literature related to digital transformation, leadership in a digital environment, public versus private sector leadership theory, digital strategy, leadership ambidexterity, dynamic capabilities, organisational adaptability, and leadership roles and skills that were found to be relevant to understanding the influence of digital transformation on leadership in state-owned enterprises. All the themes discussed in this chapter have been embedded in the research objectives of the study.

Digital technology is advancing at a rapid rate and almost everything from equipment to customers are becoming connected. Therefore, the value of digital technologies does not only come from large IT systems, but from the small improvements in every part of the value chain. Many companies are looking at digital technologies to transform their business as leaders recognise the potential of these technologies, but are uncertain on how to obtain results using digital technology. A survey conducted by MIT's Centre for Digital Business and Capgemini Consulting (Fitzgerald, Kruschwitz, Bonnet, & Welch, 2014) revealed that majority of leaders possess a lack of urgency to implement digital transformation, and a possible cause identified is that leadership do not share their vision for digital transformation with the rest of the company. The survey further revealed that a key requirement for success in digital transformation is the definition of a clear roadmap that prioritises the transformation effort in specific areas of the business (Fitzgerald et al., 2014).

Digital transformation is affecting organisational business models, products, structures and processes, and all businesses are susceptible. Businesses embark on the digital transformation journey to realise productivity and efficiency gains, and innovation with success determined by the organisation's agility, strategy, culture and talent development (Hess et al., 2016; Kane, Palmer, Phillips, & Kiron, 2015). The overarching digital strategy considers all opportunities and risks associated with digital technologies to generate value in addition to digitisation of systems and requires a different mindset and skills (Singh & Hess, 2017).

In general, a business model refers to a collection of elements that influences how the business operates and generates revenue as well as how these different elements are interconnected (Osterwalder, Pigneur, & Tucci, 2005). The business model addresses

elements such as how value is created, who the customer is and the channel to reach them, what informs the costs, and other factors that have an impact on operations and revenue. Digital business models represent a change to elements of the business model that is triggered by digital technologies (Remane, Hanelt, Nickerson, & Kolbe, 2017) and therefore goes hand-in-hand with a digital transformation strategy, where the value of digital technology is dependent on its use.

El Sawy and Pereira (2013) defined the VISOR framework for digital business models with five components: (1) The value proposition outlines the value the product / service offers to the consumer; (2) the interface outlines how the customer interacts with the product / service; (3) the service platforms outline hardware, software and infrastructure that enable delivery of the product / service; (4) the organising model outlines the structure and processes of the ecosystem; and (5) the revenue model outlines the revenue and cost associated with each part of the ecosystem (El Sawy & Pereira, 2013). Remane et al. (2017) propose the decomposition of digital business models of products / services competing for the same target market in terms of the VISOR framework to identify commonalities and variances between them. Through a process of recombination, the digital business model of the company can then be updated by adopting successful elements from other digital business models (Remane et al., 2017).

The complex context of public sector leaders is illustrated by the need to adapt to a changing environment while the bureaucratic processes and procedures discourage adaption. Thus, this context also concurrently promotes and obstructs leadership behaviour toward successful change implementation (Van der Voet, Kuipers, & Groeneveld, 2016).

2.2 Leadership differences between public and private sectors

Leadership research on the differences between public and private enterprises reveals significant differences on a number of topics. Baarspul and Wilderom (2011) highlight that there is no empirical evidence that supports employee behaviour being different in public vs private sector enterprises. Raharjo and Eriksson (2017) state that poor performance is generally attributed to public enterprises due to lack of adequate management and employee incentives when compared to private companies. Public-sector managers tend to place greater focus on the people dimension, with change-oriented and participatory leadership styles and being motivated by achievement. In comparison, private-sector managers place greater emphasis on the system dimension with relationship-oriented leadership styles and being motivated by power, but both

public and private managers primarily use intuition for decision-making (Andersen, 2010; Raharjo & Eriksson, 2017). Public enterprises are government / public owned, funded by tax-payers and influenced mainly by policies, directives and regulation, whereas private companies are privately owned, funded by consumer-generated revenue and influenced mainly by market forces and less by political control compared to public entities (Baarspul & Wilderom, 2011; Hvidman & Andersen, 2014).

Further, product choice for public entities are mandated by government to maximise impact on communities, whereas private companies determine their own products to maximise profit and address corporate interests (Madhani, 2014). Raharjo and Eriksson (2017) mention that human resource development, process management, strategic planning, information and analysis can be strongly predicted by leadership and that a change-oriented leadership style focused on growth, new and different ideas and plans for the future is more prevalent in public entities as opposed to a relational leadership style focused on being considerate and allowing lower level decision-making in private companies (Raharjo & Eriksson, 2017). Another challenge faced by public-sector leaders relates to being limited in positive (incentives) and negative (discipline) rewards on offer for employees (Meier & O'Toole, 2011). They also note that public-sector organisations face challenges in terms of procurement process efficiency, organisational structure flexibility, political influence, budget limitations and borrowing power compared to private organisations. Consequently, due to public organisations being more structured, resistance to change is higher (Meier & O'Toole, 2011).

The three key factors in private sector strategy has been identified as business definition (products & markets), the market environment and organisational capabilities underpinned by the alignment between these factors (Alford & Greve, 2017). These factors contrast with the value to be produced, the authorising environment and the productive capabilities, which are the key factors for public-sector strategy that have been identified in the Public Value Management framework (Alford & Greve, 2017; Greve, 2015). The public-sector leader must ensure that both private value and public value are produced that benefit citizens in an authorising environment with elements of authority, legitimacy, political support and credibility in which various stakeholders need to be consulted for permissions and resources to fulfil the mandate of the public-sector entity, which requires various internal and external capabilities to achieve its objectives (Alford & Greve, 2017).

Eggers and Bellman (2015) identify certain barriers to digital transformation faced by public organisations. They find that the strategy for digital transformation is lacking in

most public organisations and identify that the foremost hindrances for successful digital transformation is shortage of digital skills among the workforce as well as rigid and regulated procurement processes. In order to enable digital transformation, however, the public sector does recognise that commercial and procurement strategies must change to a large degree (Eggers & Bellman, 2015). Resistance to change by employees and the poor management of change are the primary causes of failure in digital transformation implementation (Seah, Hsieh, & Weng, 2010).

According to Van der Voet et al. (2016), change implementation in public organisations is distinctly different from private organisations and they argue that the role of leadership is essential in change implementation in public organisations which function in a complex environment with political influences, various stakeholders and often contradictory objectives. Leadership is essential to creating commitment to change in an organisation through communication and participation, and the behaviour of leaders is influenced by the context in which they operate (Van der Voet et al., 2016).

2.3 Leadership in Digital Transformation

Digital transformation has various definitions from literature but this report uses the definition provided by Fitzgerald, Kruschwitz, Bonnet, and Welch (2014) as “the use of new digital technologies to enable business improvements” (Fitzgerald et al., 2014, p.2). Digital transformation is an on-going process that can significantly alter a company and its operations. It is imperative that top management support is aligned with the change initiative as it influences the entire company, and therefore new leadership skills and careful stakeholder management are required to enable success (Matt et al., 2015).

Shaughnessy (2018) identifies that leaders must be able to understand and articulate the values and workflow of the culture required to be successful in the digital age in order to guide the organisation through the transition to a digital culture. Institutional challenges experienced in digital transformation have been identified as negative attitudes of older workers, legacy technologies, and innovation fatigue. Leaders in digital transformation will need to address these challenges to successfully implement the digital transformation strategy (Fitzgerald et al., 2014). Delays in new ideas becoming known, executives focusing on irrelevant work and differing views of opportunities between different parts of the organisation cause inefficiencies. The culture change required must focus on bringing these parts together for collaborative and value-seeking interaction (Shaughnessy, 2018). Recommended actions to be taken during execution include communicating the benefits of digital transformation, implementing appropriate

incentives, defining the right key performance indicators and changing the organisational culture (Fitzgerald et al., 2014).

A research report on the digital transformation of the public sector (Eggers & Bellman, 2015) highlights strategy, customer focus, culture, skills and procurement processes as key elements the public sector must address in preparing for digital transformation. In terms of strategy, public-sector leaders must define a clear vision of the future, supported by a detailed plan for digital transformation that highlights how organisational capabilities will be developed and how elements that might hamper the digital transformation will be overcome. In terms of customer focus, the user must be at the centre, and open innovation initiatives like crowdsourcing ideas and co-creation must be explored in addition to customer feedback activities to ensure that the digital transformation objectives reflect and achieve customer requirements. In terms of culture, the work environment must be changed to promote collaboration, innovation and flexibility through open-plan office spaces, shifting to using collaboration technologies and platforms to conduct business (e.g. Slack, SharePoint, Skype, etc.) and less restricted device plurality to signal to employees that change is coming. Appointing agitators in key positions of authority to challenge the status quo and agitate the system further stimulates culture change and different ways of thinking. In terms of skills, the type of skills needed and how they can be attained must be considered. Digital skills are needed in all functions of the business as all parts of the business must function digitally to ensure digital transformation success. Attracting the required digital talent in unconventional ways is equally important to investing in upskilling employees in digital skill sets, and exploring training and learning partnerships with the private sector. To obtain the right digital skills in their teams, public sector leaders must get personally involved in recruiting candidates for optimal fit in terms of skills, attitude and culture. Through co-creation, skills external to the organisation can also be utilised or enabled to achieve the outcomes the public-sector entity requires. In terms of procurement processes, public sector procurement approaches aim to ensure effective expenditure of public funds. In a digital business environment, these processes will not allow the required flexibility and agility to respond to changing market conditions, and therefore the process must be simplified to reduce vendor selection time, allow for vendor collaboration and enable shorter contract periods to reap the benefits of the increasing pace of technology advancement (Eggers & Bellman, 2015).

A deep understanding of the business and how digital technologies can benefit it is one of the most important capabilities leaders should have / develop (Kane, Palmer, Phillips,

& Kiron, 2015). Eggers and Bellman (2015) also highlight co-creation, agility and intense customer focus as elements of a digital mindset. In contrast, Alos-Simo, Verdu-Jover, and Gomez-Gras (2017) argue that leadership influences organisational culture and propose that leaders' main focus should be to encourage digital business adoption by promoting and enabling a culture of adaptiveness and flexibility in response to the digital environment.

2.4 Digital Strategy

Organisations should be developing a digital strategy that considers the entire organisation, according to Kane, Palmer, Phillips, and Kiron (2015). They argue that (1) this strategy should address both current and future technologies and be communicated across the business to promote ownership by employees; (2) leaders must evaluate whether the culture is collaborative to enable digital success or requires a cultural shift; (3) the right skills must be acquired at all levels (leadership included) to be successful in the digital environment; (4) the current technology infrastructure must be evaluated as an enabler of employees to respond successfully to a changing environment; and success is determined by innovative implementation of strategy, skills and culture (Kane, Palmer, Phillips, & Kiron, 2015). Organisations with high digital maturity were found to have leadership with digital skills, access to resources and opportunities to develop the digital skills of employees through training and practice, a mindset that encourages collaboration and taking risks, and that take the lead with defining the business transformation through technology (Kane, Palmer, Phillips, Kiron, & Buckley, 2015). In a further study, they found that these organisations are adopting nimble and agile structures and utilise internal and external resources to achieve optimal results (Kane, Palmer, Phillips, Kiron, & Buckley, 2016). A common theme that arises is that a digital culture lies at the base of digital success.

El Sawy, Amsinck, Kræmmergaard and Vinther (2016) define digital leadership as "doing the right things for the strategic success of digitalisation for the enterprise and its business ecosystem" (p.142) and propose a model for developing digital leadership capabilities with six building blocks: (1) The business strategy must be an interlinked and over-arching strategy that is to be implemented digitally, leveraging the core competences of the organisation and the ancillary competences of partners. (2) The business model for products and services must leverage both the digital and physical environment, evaluating technologies in terms of their digitalisation value and co-create value with partners and customers. (3) An enterprise and engagement platform is key to signal to employees, customers and partners that the way of working has changed, and

therefore this platform must be very intuitive, user-friendly and easily customisable. (4) The corporate IT function plays a critical role and needs to be interconnected with the business at multiple touch-points to disseminate innovation in the digital space throughout the business. (5) A digital workplace is required to enable learning and sharing of knowledge by leveraging digital technologies that promote collaboration and flexibility in terms of time and location. (6) A mindset of experimentation and collaboration in addition to training and development of digital skills is key to establishing a flexible workforce that is able to support rapid change in the environment (El Sawy et al., 2016). Berman (2012) supports these thoughts by proposing that organisations should innovate on their business models, pursue collaboration with customers and community, obtain learnings from data analysis, improve the supply chain through digitalisation and connect employees for digital transformation success.

Hess et al. (2016) state that the organisational context influences its digital ambition, and therefore the organisation's expenditure and competence in technology, its size and financial position should be considered in defining the digital transformation and business strategy. Further considerations include integrating or separating digital operations, support from top management and staff, expected outcomes in terms of products / services and business processes, competences required to implement and operate and how they will be acquired (training / recruitment / partnerships) and how the digital transformation will be financed (Hess et al., 2016).

SOEs must utilise their influence in the public sector to jointly create value in collaboration with other stakeholders (including society) to drive inclusive growth. They identify the importance of leadership being the example, with leadership role agility and engagement at all levels internal and external to the company. They further note that digital technology enables delivery of higher productivity and improved outcomes at reduced cost (The Public Sector Research Centre, 2015).

2.5 Leadership Adaptability in the Digital Environment

In a world of continuous digitalisation that introduce complexity and uncertainty in the business environment, significant research has been conducted to address leadership adaptability due to a realisation that the historic leadership models do not hold true in all situations anymore. The next section discusses a few themes that have arisen.

2.5.1 Leadership ambidexterity

Ambidexterity deals with the simultaneous focus on exploration and exploitation. Exploration, in the context of this study, comprises the use of technology and innovation to explore new and novel ideas, and pursue new opportunities that arise from digitalisation for future viability. Exploitation comprises the use of technologies and existing capabilities to gain efficiency advantages and improve productivity to achieve better current results (Raisch, Birkinshaw, Probst, & Tushman, 2009). Generally, exploration and exploitation are functionally separated in organisations in order to maintain focus on each, and balancing tensions between exploration and exploitation is a critical adaptability leadership challenge (Papachroni, Heracleous, & Paroutis, 2016; Tushman & O'Reilly, 1996). The challenge arises when the efforts need to be re-integrated and coordinated (Durisin & Todorova, 2012). As the exploration effort occurs for each new opportunity, re-integration becomes a continuous back and forth, which holds important implications for leadership.

Structural ambidexterity comprises separating past business from future business, which requires very strong integration and understanding at senior leadership team level (O'Reilly & Tushman, 2004). The challenge that organisations face is developing senior leaders who can successfully manage and make simultaneous decisions on trade-offs between exploitation and exploration (Tushman & Euchner, 2015). Contextual ambidexterity comprises simultaneous management of exploration and exploitation occurring at individual / group level and not organisational level (Havermans, Den Hartog, Keegan, & Uhl-Bien, 2015).

The cultural differences between exploration and exploitation are quite significant, where rigidity, process, discipline and no room for mistakes are juxtaposed with experimentation, failure and rapid learning. A compelling vision, persistent communication and common core values enable leaders to manage both these cultures to flourish (O'Reilly & Tushman, 2004). The link between individual professional identity and organisational identity is critical during the change initiative (Tushman & Euchner, 2015). Leaders must recognise the consequences of the change initiative on individual identities and assist individuals to deal with these. The complexity of the environment greatly determines the need for exploration and exploitation in a direct and inverse fashion, respectively. This suggests that due to the dynamic environment, exploitation and exploration efforts require appropriate balance and dynamic management (Smith, 2014), which further points to the need for adaptive leadership competence. The reference to balance, however, does not necessarily mean equal in this context, but a

dynamic balance of constant adjustment in response to changes in environment. Thus, adaptive leadership is continually inconsistent in the pursuit of contextual ambidexterity (Havermans et al., 2015). Smith (2014) finds that top management teams struggle with resource allocation, product design and organisation design in the pursuit of simultaneous exploitation and exploration and suggests that senior leaders should welcome inconsistencies in decision patterns over time through the practices of differentiating and integrating.

2.5.2 Dynamic capabilities

The theory of dynamic capabilities categorises capabilities as either dynamic or operational (Teece, Pisano, & Shuen, 1997; Winter, 2012). Dynamic capability theory supports the theory of ambidexterity discussed above, where adaptation dynamic capabilities enable efficiency and productivity through exploitation, while innovation dynamic capabilities enable development of new competences in responding to the changing business environment through exploration (Dixon, Meyer, & Day, 2014).

Dynamic capabilities, with respect to leadership, refers to sensing and shaping opportunities and threats (which is related to the entrepreneurship concept of opportunity recognition), seizing opportunities and maintaining competitiveness by combining, enhancing, protecting, and reconfiguring the company's assets, and thus enabling an organisation to adapt and evolve (Dixon et al., 2014; Teece, 2007, 2016). Teece (2016) notes that more and more organisations face ever-increasing business environment change, requiring the kind of rapid response akin to entrepreneurial start-ups, and proposes that leadership continuously evaluate the organisation with respect to the opportunities being pursued, and that regular review of the organisation's structures and processes supports a transformation culture (Teece, 2016).

Dynamic capabilities need to be developed at both the business and corporate level to fully exploit the current strategy and explore a future that is uncertain. These efforts need to be separated physically, culturally and financially due to differences in competencies and culture (Tushman & Euchner, 2015). Essential to enabling leadership dynamic capabilities are absorptive capacity, which refers to the ability to learn by being able to recognise, assimilate and apply new knowledge in problem-solving, management and learning (Boal & Hooijberg, 2000; Cohen & Levinthal, 1990; Volberda, Foss, & Lyles, 2010); and adaptive capacity, which refers to the ability to change (Aggarwal, Posen, & Workiewicz, 2015; Boal & Hooijberg, 2000). As an alternative to structural preparation

for change, Aggarwal et al. (2015) propose that leaders develop policy and routines that can adapt to change for proactive instead of reactive response to change.

2.5.3 Organisational adaptability

When considering leadership in innovation, Perry-Smith and Mannucci (2017) illustrate how leaders can encourage innovation by enabling network structures. However, leaders must continuously reconstruct and activate networks because idea journeys are unique and thus networks need to be fluid. The leader's cognitive style must be considered when dealing with different networks in the innovation process as some networks respond better to an adaptive style (to do things better) than an innovative style (to do things differently) (Carnabuci & Dioszegi, 2015). Knowledge transfer is key in the innovation process and leaders can enable it through creating network structures that promote shared discovery of new ideas and learning (Tsai, 2001).

From a complexity leadership theory perspective, adaptability arises from the presence of elements such as external pressures, disruption, conflict, tension and innovation that push a system toward chaos (disturbing elements), and elements such as structure, planning and control that push toward order (stabilising elements) (Thietart & Forgues, 1995; Uhl-Bien & Arena, 2018). Complexity Leadership Theory (CLT) identifies that operational, entrepreneurial and enabling leadership are required for adaptability (Uhl-Bien & Arena, 2017). Enabling leadership functions as the interface between operational and entrepreneurial leadership and is what is needed to lead in the adaptive space created between the operational and entrepreneurial systems (Uhl-Bien & Arena, 2017). Furthermore, CLT suggests that adaptability improves innovation and performance through daily reaction to contextual pressure and opportunity (Arena & Uhl-Bien, 2016). They found that adaptive organisations excel at creating adaptive space through adaptive practices and principles in response to pressures. Adaptive space is a mechanism for hierarchical, bureaucratic organisations to manage adaptability (Uhl-Bien & Arena, 2017). Lastly, management innovation research has identified two processes that promote adaptability in responding to external environment changes which are managing adaptive tension (stimulating internal innovation and exploration of new ideas) and transferring externally acquired knowledge back to the organisation (Peeters, Massini, & Lewin, 2014).

Large organisations (including government) usually attempt to respond to change and new developments with conventional governance instruments, which include accountability and stability, while these instruments do not enable adapting to change.

Janssen and van der Voort (2016) mention the concept of adaptive governance, with learning as core value, which requires stability and accountability to be balanced with agility and adaptability through building ambidextrous organisations. Learning is generally seen in competition with control, but simultaneous learning and control must be practised by organisations in changing and uncertain times. This is very challenging in bureaucratic systems, which are fundamentally slow and intended to ensure accountability and transparency through meticulous rules, processes, procedures and fixed hierarchical structures. Adaptive governance is born out of the contrast between a changing environment and rigid organisational governance as an attempt to improve adaptive capacity and pace of decision-making to deal with uncertainty. It is enabled by knowing which part of the organisation should remain stable, and which parts can / need to change (Janssen & van der Voort, 2016).

Historically, large organisations have structured their work environments to achieve efficiencies with hierarchical management structures, and clearly defined processes and policies. These structures hamper employees from being able to rapidly respond to customer needs as required when the organisations are being disrupted by digital offerings. The traditional working environment is reflected by isolated physical spaces and siloes, and the way that work is done must be transformed to enable success in the digital era (Dery, Sebastian, & van der Meulen, 2017). They identify six elements of a digital workplace that management must address in driving digital era innovation being space, systems, social, sustaining leadership, systemic learning and symbols in two dimensions (employee connectedness and responsive leadership). The first three elements should be leveraged to enable and promote collaboration, and this requires leadership that create these integrated environments. The second three elements should be leveraged to drive innovative behaviour from a leadership level, but are dependent on IT capabilities. The digital workplace should be guided by clearly defined customer- and employee experiences, the latter of which enables innovation, if positive.

The researcher will assess the digital transformation events through the lens of these leadership frameworks in the context of state-owned enterprises.

2.6 Leadership Roles

Transformational leadership has been found to have a positive, organisational level influence on innovation (Engelen, Schmidt, Strenger, & Brettel, 2014) and Blue Ocean Leadership suggests a framework to achieve transformation with less time and effort by focusing on the actions undertaken by leaders, close connection to the operating

environment and distributing the leadership function across all management levels (Kim & Mauborgne, 2014). In contrast, Complexity Leadership Theory posits that leadership is not based on actions by individuals but on an interactive dynamic between individuals over time, where these individuals act both as leader or follower in different situations (Lichtenstein et al., 2006).

Research into the roles of leaders in information systems have revealed that these leaders' profiles are influenced by two main dimensions, being strategic decision-making authority and leadership capability, and it was found that the combination of these dimensions have a significant impact on the contribution information technology can make to business performance (Preston, Leidner, & Chen, 2008). Further, it has been identified that the organisation's commitment to information technology is a key enabler for successful digital transformation.

Leadership roles that have been identified for digital business draw on situational leadership theory in that leaders must be able to adapt how they lead, based on the situation they are dealing with. These leadership roles include: (1) Commander (delegates decisions and actions, focusing on the objective, while providing direction and rewards), which is most effective with experienced, self-managed teams; (2) Catalyst (initiates and motivates idea generation, focusing on action, while providing a framework for innovation), which is most effective with entrepreneurial / innovative teams; (3) Coach (guides and directs, focusing on performance, while providing feedback for improvement), which is most effective with operational / action-oriented teams; (4) Communicator (sets and communicates vision and plan to inspire and create buy-in, enabling the team to take action), which is most effective in service firms where everyone must work together to achieve success; (5) Collaborator (supports and models best practice, focusing on execution, while providing hands-on support) which is most effective with inexperienced teams; (6) Consultant (advises and contributes to planning, focusing on long-term outcomes, while providing experience and knowledge-based insight), which is most effective with traditional / conservative teams; and (7) Co-creator (allows other stakeholders to chase their individual ambitions in conjunction with those of the organisation, focusing on rapid scaling and innovation), which is most effective with network teams (Adnams, 2017; Libert, Wind, & Fenley, 2015).

Leadership decision-making has been defined in a framework consisting of four different contexts (Snowden & Boone, 2007). Simple contexts require leaders to identify or assess the problem or situation, categorise the facts of the situation and respond according to

best or established practice. Complicated contexts require leaders to identify the facts of the situation, analyse and evaluate alternatives and respond with the most appropriate action. Complex contexts require leaders to allow patterns to emerge from the situation prior to assessment and taking action. This context requires an experimental type of management, which allows failure in order to determine the desired action to succeed. Chaotic contexts require leaders to take action immediately to establish some sort of order to the situation, determine where stability is present and absent, and take appropriate action to move the situation from chaos to complex. Snowden and Boone (2007) further identified that uncertainty requires leaders to understand the context of a situation, be flexible to change their leadership style accordingly and embrace complexity. By engaging business leaders and information system leaders in a facilitated, participative process enables differing views on digital transformation to be resolved, respondents to understand the need for change and the underlying assumptions of existing practices, can lead to improved relationships and ways to collaborate, which may result in the definition of new leadership roles in the context of the organisation that drives digital transformation forward (Hansen, Kraemmergaard, & Mathiassen, 2011).

Recent leadership research highlights that although leadership research in recent decades has moved away from autocratic leadership styles, they are still relevant and effective in the current day and age in situations, where the more democratic forms of leadership are ineffective in getting the job done and that followers sometimes prefer this type of leadership in chaotic situations (Harms, Wood, Landay, Lester, & Lester, 2018).

Fernandez et al. (2010) proposed the concept of integrative leadership, from public administration and leadership literature, incorporating five leadership roles deemed crucial for leadership success in the public sector. These include (1) task-oriented leadership, concerned with the achievement of goals and objectives through planning, directing and coordinating activities, monitoring performance and providing feedback; (2) relations-oriented leadership, concerned with the well-being of subordinates and promoting interpersonal relationships between members of the organisation; (3) change-oriented leadership, concerned with adapting to a changing environment, improving strategic decision-making, advancing innovation and flexibility and managing change initiatives; (4) diversity-oriented leadership, concerned with being concise of diversity in the workplace and leveraging diversity in the workforce to attain better performance; and (5) integrity-oriented leadership, concerned with legal, fair and equitable behaviour and treatment of internal and external stakeholders (Fernandez et al., 2010).

Singh and Hess (2017) identify the role of entrepreneur, the role of digital evangelist and the role of coordinator as the essential leadership roles that are key to leaders during digital transformation. In the entrepreneurial role, leaders have a strong focus on the customer. They are required to respond rapidly to the market. The leader as entrepreneur explores innovation by leveraging digital technologies and defines the digital transformation strategy that enables the organisation to pursue opportunities offered by digital technology advancements. This leader also initiates, directs and guides the rest of the business on the digital transformation journey (Singh & Hess, 2017). In the digital evangelist role, leaders communicate the digital transformation strategy throughout the business in addition to persuading and inspiring employees to change the historic ways of working, which includes employee training to cope with the many changes during the process. Digital transformation therefore requires a culture shift that must be lead and enacted from the top (Singh & Hess, 2017). In the coordinator role, leaders need to manage and coordinate digital activities across different functional areas in alignment with the digital transformation strategy. Part of these activities is a shift from functions operating in silos to collaboration and cooperation across functions (Singh & Hess, 2017). They further re-emphasise that digital transformation affects the entire business and its stakeholders, and is not an isolated process. Further, the company context (organisational maturity, workforce mindset, etc.) and the external environment largely influence the specific role leaders need to adopt in the digital transformation process.

When considering complexity leadership theory, the leadership role is said to shift to the enablement and creation of what Arena and Uhl-Bien (2016) call adaptive space, and it is crucial to this role to leverage the environmental pressures. The role of the leader is to accept uncertainty and work to find the balance between applying stabilising elements and reaction to disturbing elements through increasing communication and interaction by leveraging network structures (Uhl-Bien & Arena, 2018).

2.7 Leadership Skills

Bennis (2013) proposes that the availability of information and access to information will continue to expand, resulting in increased transparency and speed of feedback to leaders. Leaders will thus be able to gain a better understanding of the views of various stakeholders that are also becoming more vocal and complicated. Leaders in the digital age will thus need to understand the power of information and how to use this information to make better business decisions. In order to achieve this, Bennis (2013) further identifies that leaders in the digital environment require adaptive capacity, which includes

resilience, openness, optimism and courage. Enabling leadership, as identified in complexity leadership theory, requires leaders to be individually adaptive, to mobilise and energise others to act on pressures, with characteristics of conviction and humility (Uhl-Bien & Arena, 2017).

Dynamic managerial capabilities, as defined by Adner and Helfat (2003), are “the capabilities, with which managers build, integrate and reconfigure organisational resources and competences” (Adner & Helfat, 2003, p.1012). The three underlying attributes of dynamic managerial capabilities have been found to be managerial human capital, managerial social capital and managerial cognition, where human capital refers to managers’ skills, knowledge and experience; social capital refers managers’ access to resources and information through their networks; and cognition refers to managers’ belief systems and decision-making models that are shaped by managers’ human- and social capital (Adner & Helfat, 2003; Kor & Mesko, 2013)

Businesses today are distrusted due historic responses of dishonesty when scrutinised. The public today cannot be misled as digital technology has democratised public participation and corporate dishonesty is widely communicated on various platforms. Companies cannot hide anymore and therefore needs to win back the trust of society (Bolden & O’Regan, 2016). They highlight that trust, openness and authenticity are essential skills required of leaders going forward. It is further highlighted that leadership flexibility and agility are important characteristics.

Most companies still follow the strategic approach of spending large amounts of effort in forecasting future market trends and the competitive landscape after which the leadership defines the roadmap to achieve success in the anticipated future. Considering the uncertainty in today’s business environment, the applicability of this approach requires reconsideration. A different approach could assist companies to better respond to the changes in the business environment, where short-term leadership decisions are taken in the context of a long-term direction, which can be reached via different paths. A reiterative process of definition, implementation and refinement enables strategy decisions to be tested and refined to respond to changing market conditions. Leadership flexibility is required to navigate around potential roadblocks as well as the willingness to rapidly refocus resources from unsuccessful initiatives toward more promising ones. Identification of potential obstacles and developing contingency plans will further enable a quick response to unfavourable events (Mankins, 2017).

A few different leadership models have been developed by business and academic researchers in an attempt to describe the leadership competencies required to lead in uncertain, complex and digital business environments. The AGILE model, as the first example, is focused on leadership agility, and posits that organisational team and individual agility requires five capabilities in reference to people, processes and technology (Horney, Pasmore, & O'Shea, 2010):

- *Anticipate Change*, which requires visioneering, sensing and monitoring as leadership skills;
- *Generate Confidence*, which requires connecting, aligning and engaging as leadership skills;
- *Initiate Action*, which requires bias for action, decision-making and collaborating as leadership skills;
- *Liberate Thinking,* which requires bias for innovation, customer focus and idea diversity as leadership skills; and
- *Evaluate Results*, which requires creating expectations, real-time feedback and fact-based measurement as leadership skills.

The VUCA Prime model (Lawrence, 2013), as a second example, proposes leadership skills that can be developed to cope with a VUCA environment:

- *Vision* can counter volatility, where a clear vision enables decision-making alignment with the desired future state when faced with unexpected changes in the environment;
- *Understanding* can counter uncertainty, where observation, engagement and collaboration enable leaders to make sense of the volatile environment;
- *Clarity* can counter complexity, where making quick and clear sense of chaos enables better informed business decisions; and
- *Agility* can counter ambiguity, where cross-functional communication and rapid application of solutions reduce confusion.

Singh and Hess (2017) identify IT competency, change management, inspiration, digital pioneering and resilience as key skills required by the Chief Digital Officer to lead the digital transformation process. It is further proposed that these skills are key to all leaders across the business to be more effective in the digital world. First, leaders need to develop basic IT competency to be comfortable in the digital world. Digital products and services all have IT components, and therefore leaders need to be familiar with

infrastructure, applications and systems to effectively communicate on business requirements and new products and service ideas in the digital environment. Second, leaders need interdisciplinary business acumen and change management skills to understand and effectively communicate with stakeholders on the impact of digital technologies on the business and customers. Third, leaders must be able to inspire and motivate others to enable successful execution of the digital transformation of the business. This includes overcoming resistance to change from entrenched cultures and often involves assisting others in moving past the created barriers. Fourth, leaders need to develop forward-thinking capabilities to see opportunities for the business in future that could be unlocked through digital technologies. Last, resilience is a key skill that leaders need in the digital age to continue and persist with implementation of the strategy in the face of failure and forces opposing the success of digital products and services.

Recent literature that investigated cognitive skills of leadership identified the following nine skills deemed absolutely essential for leaders to solve complex problems: accurate definition of a problem; analysis of goals and problem origins; identification of constraints, within which the problem must be resolved; plan formulation, forecasting and foresight; scenario planning; creative thinking; contextualisation of solutions in the environment; and communication of vision (Mumford, Todd, Higgs, & McIntosh, 2017). These skills are augmented by experience and mental models, but the literature also recognises that what is currently known about leaders' problem-solving skills is very limited and requires significant additional research (Mumford et al., 2017).

2.8 Conclusion

To enable successful digital transformation, there are a few elements that companies must address. First, companies must have a unified plan for the integration of physical and digital parts of the business, and development of new capabilities to both redefine the value proposition for customers and digitally convert operations simultaneously (Berman, 2012). Second, companies must redefine organisational structures and processes to enable collaboration and experimentation, and development of integrated product / service offerings (Sebastian et al., 2017). Third, they have to focus on leadership development in the areas of rapid decision-making, adaptability and technology understanding (Eggers & Bellman, 2015; Seah et al., 2010). From the literature, it is clear that leadership, and the example they set, is the core that determines the success of digital transformation.

Chapter 3: Research Questions

3.1 Introduction

This chapter considers the background and known knowledge as described in Chapter 2 together with the purpose and objectives of the study as described in Chapter 1 to present the specific research questions of the study.

The overarching, inclusive question of the study asks what influence digital transformation has on leadership in state-owned enterprises.

3.2 Research Question 1

How will the business environment change for SOEs due to digitalisation and digital transformation?

The researcher seeks to understand the current context of SOEs and how they see their internal and external business environment transforming due to digitalisation.

3.3 Research Question 2

How does the leadership role in SOEs need to change in the digital business environment?

The researcher seeks to understand the current roles of leaders in SOEs and how these roles will evolve in the medium term due to the changing environment toward a digital society.

3.4 Research Question 3

What shift in leadership skills are required in SOEs in the digital business environment?

The researcher seeks to understand the skills currently required by leaders in SOEs and what skills will be required in the medium term to adapt to the changing environment toward a digital society.

Chapter 4: Research Methodology

4.1 Introduction

The purpose of this chapter is to explain the research methodology employed in conducting the research study. It explains the reasons for the research design choices and the data collection methods used. It further highlights the limitations and assumptions of the study and concludes with addressing ethical concerns.

4.2 Research Design

In academic research, there are three dominant research design types: the qualitative method, the quantitative method and the mixed method. The qualitative method comprises data collection and analysis of non-numerical data, while the quantitative method comprises data collection and analysis of numeric data, and the mixed method is a combination of the qualitative and quantitative methods (Saunders, Lewis, & Thornhill, 2008). This study followed the qualitative method as the intention was to explore the leadership environment in SOEs and attempt to understand how the roles and skills of leaders will be affected by digital transformation. This deeper exploration of the environment and the associated context could not be explored adequately with a quantitative method, and therefore the research design was determined by the overarching research question, and the intention of the study and the data analysis procedure was determined by the data collection technique.

This research has been conducted through a qualitative cross-sectional research design, where data were collected through in-depth interviews (Saunders et al., 2008). Primary data obtained through the interviews were gathered over a short time period of approximately eight weeks. Due to time constraints of the research project and possible access limitations, a longitudinal study was not possible for primary data. Considering that the study did not make use of historical secondary data, a longitudinal study could further not be justified (Saunders et al., 2008).

The research philosophies applicable in this study was that of critical realism and interpretivism. The focus was on explaining the execution of digital transformation and digital business strategies and related events within the context of SOEs while attempting to understand the reasons / motivations of certain actions and occurrences (Saunders et al., 2008)

The purpose of the research design was exploratory as the research endeavoured to understand how SOEs are dealing with digital transformation and how they execute on their digital business strategies. The leadership practices in use were explored to determine, if leadership is a detractor or enabler of successful execution of digital business strategies.

The research approach was inductive as the research was both concerned with evaluating constructs from existing knowledge as well as the context within which events occur and establish different views. The focus was on understanding why events occur, observing patterns and the specific influencing factors. (Saunders & Lewis, 2012). The inductive approach further allowed flexibility as the research progressed and new insights arose from the data (Saunders et al., 2008). The outcomes of the interviews could have highlighted unexpected themes that would have required further literature study and exploration (Saunders & Lewis, 2012).

Primary data were collected through in-depth interviews that made use of a semi-structured approach to investigate and explain relations to theoretical constructs and explore new insights (Saunders & Lewis, 2012). Short and open-ended questions were used during the interviews, the questions were formulated to address the research objectives and were guided by extant literature constructs.

4.3 Population

The population of the study was defined as South African SOEs with specific focus on executive management in strategy, digital, technology and information functions. By selecting various SOEs, environmental variation was controlled and the domain of the findings could be clarified (Eisenhardt, 1989).

4.4 Sampling and Sample Size

Seven SOEs were targeted in the Information and Communication Technology sector, and the targeted minimum sample size for respondents were set between 12 and 15 or until saturation was reached and no further insights found from additional data (Saunders et al., 2008). The ICT sector was targeted due to its use of digital technologies and anticipated progress in digital transformation.

For the purposes of the study, the focus was on executive management, whose decision-making is influenced by digitalisation and included executives in strategy, technology,

operations and information technology. Interviews with two CEOs were also held, providing added value to the findings.

Homogeneous purposive sampling was used for the interviews to select sample members that are similar. This sampling technique enabled the researcher to study the group in greater depth and identify minor differences (Saunders & Lewis, 2012; Saunders et al., 2008). The researcher utilised his informal network to establish a list of individuals who formed part of the sample. Where challenges were experienced to gain access to the targeted sample, SOEs in the ICT sector were approached telephonically through the general contact numbers of the businesses, and transfer was requested to the relevant individuals (or their personal assistants).

4.5 Unit of Analysis

The unit of analysis was the members of the population who were in executive leadership positions at the time and were involved in digital transformation strategy formulation and execution in the state-owned enterprises, where access could be obtained. Their opinions and perceptions were assessed via interview questions.

4.6 Measurement Instrument

Interview questions were derived from the research objectives of the study guided by nascent literature. Three to four interview questions were posed to respondents for each research objective. The questions used in the interviews are listed in Annexure A.

The first four interview questions (and their associated sub-question) addressed the first research question in an attempt to understand the current context of SOEs and the anticipated change in their internal and external business environment due to digitalisation.

The fifth, sixth and seventh interview questions addressed the second research question in an attempt to understand the current leadership roles in SOEs and how these roles will evolve in the medium term due to digital transformation of the business.

The last four interview questions addressed the third research question in an attempt to understand the current leadership skills required in SOEs and the change in leadership skills required in the medium term to adapt to the changing environment.

To test the applicability, clarity and understanding of the questions, a piloting phase preceded the data gathering process where practice interviews were conducted with two colleagues prior to the main set of interviews. The practice interviews were used to

identify any bias, prepare for difficult respondents and refine the interview questions (Saunders & Lewis, 2012)

4.7 Data Collection

The researcher's informal network was leveraged to gain access to the target organisations and obtain contact details of the respondents. The interview candidates were initially contacted telephonically to introduce the researcher, after which email correspondence followed to introduce the context of the research. Preliminary visits to the organisations were planned to enable the researcher to gain a better understanding of the organisation and establish a trust relationship with the respondents (Shenton, 2004). However, this was not possible due to the unavailability of the respondents. Appropriate interview dates and times were confirmed with the personal assistants of each respondent.

Activities in preparation and during the interviews were informed by the approach highlighted by Saunders et al. (2008). The researcher attained knowledge of the literature and the organisation to gain credibility, obtain maximum detail from the respondents and assess the accuracy of responses. The interview guide was provided to respondents prior to the interview, which enabled the researcher to have a focused direction and purpose in obtaining data and allowed the respondents to prepare. The location for all the interviews were either in the offices of the respondents or in boardrooms at their company premises. These locations were convenient for the respondents and quiet to allow for clear audio recording. The researcher dressed appropriately for the interview to not affect the researcher's credibility or cause respondent bias. The researcher prepared opening remarks to demonstrate credibility, gain consent and allay any uncertainties the respondents might have had in terms of confidentiality or anonymity. Open and probing questions were used to reduce the possibility of bias and increase information reliability. Long questions were avoided and the critical incident technique was used (Keaveney, 1995). The researcher was cognisant of behaviour that could lead to bias during the interview. Attentive listening was applied to encourage responses and explore explanations and meanings. The researcher's understanding of the respondent responses was tested through summarising the responses to each question. The data were recorded, using audio-recording and the researcher took notes of the interview and contextual data.

Interviews were conducted at quiet locations where the interview could be conducted without interruptions or disturbance and that were comfortable and convenient for the

respondents. The interviews were anticipated to be 60 minutes in length. The length of the interviews varied from 33 minutes to 123 minutes, with the average length being 73 minutes.

Face-to-face interviews were conducted with executive and C-suite leaders in strategy, information technology, operations and technology in seven (7) South African state-owned enterprises; five of which are classified as major public entities (schedule 2), one of which is classified as national public entity (schedule 3A) and one of which classified as national government business enterprise (schedule 3B) as per the Public Finance Management Act (Department of National Treasury, 2018).

During the semi-structured interviews, open-ended questions were used to obtain extensive and detailed information, descriptions of situations, attitudes and facts. These questions aimed to establish the ‘what’, ‘how’ and ‘why’ of the situation. Further, probing questions were used to focus and gain deeper insight into responses relevant to the research topic and gain clarifying explanation from respondents regarding reasons for the situation. The researcher was cognisant to not ask leading questions that could introduce bias (Saunders et al., 2008). Iterative questioning was used to detect possible contradictions or falsehoods by returning to previously raised matters with rephrased questions (Shenton, 2004).

The interviews were audio-recorded (after consent was obtained from each respondent) for transcription afterwards. Interview notes and contextual data were used to create full accounts of the interviews as soon as possible after each interview for initial analysis of the data collected. Eisenhardt (1989) advised to take note of all information and constantly reflect what the learning is and how the information is different from previous interview data. The responses from prior interviews were also used to gain deeper understanding in subsequent interviews. The intended length of each interview was 60 minutes but most were longer to ensure that all questions were explored in-depth.

To establish researcher credibility, face-to-face introductions were requested with senior executives in each organisation with the intention to communicate the research topic, purpose of the research and research objectives and give assurance of confidentiality. These separate prior introductions did not materialise; however, the research topic, purpose of the research, research objectives and confidentiality assurance was communicated prior to starting each interview.

4.8 Data Integrity

Semi-structured interviews are not standardised and therefore concerns of reliability / credibility could be present. This reliability refers to whether other researchers will obtain similar information, if they conduct the same type of study, using the same questions (Saunders et al., 2008). This method of research was chosen to explore the complex and dynamic circumstances of occurrences at a given point in time; and therefore, the replicability of the research is of lesser value than the insight that was gained from the in-depth analysis of the circumstances.

Although validity is not generally a concern with semi-structured or unstructured interviews, care was taken to ensure that questions were clarified and topics were discussed from multiple angles to maximise access to the respondents' knowledge and experience.

To address credibility concerns, the transcripts of the interviews were checked by the researcher, while listening to the audio recordings to ensure that the transcripts and what had been captured were an accurate reflection of what was said by the respondents (Shenton, 2004). Iterative questioning was used to identify any inconsistencies in the data reported by respondents.

4.9 Bias

Sample bias might have been introduced by the nature of the individuals who agreed to be interviewed (Saunders et al., 2008). Careful consideration had been given to the selection of the sampling method to minimise sample bias.

As the researcher was employed at a state-owned enterprise, the potential existed for researcher bias. This bias could influence the setting of the questions as well as interpretation of the data. The potential for this bias was reduced by setting the interview questions on key findings from literature and not according to the interest of the researcher. Second, the data were analysed through coding of the data and not a direct interpretation by the researcher of what was said.

Bias was minimised by establishing trust with respondents through proper planning prior to interviews and clear communication of intention of the research.

4.10 Data Analysis

The data were analysed in text form. In preparing the data for analysis, the interviews were transcribed verbatim and recorded with word-processing software (MS Word), with the researcher being cognisant to use recording conventions consistently. A coding system was used for the interviews and the analysis of the data was conducted with the assistance of computer-aided qualitative analysis software in the form of Atlas.ti to assist with thematic analysis of the transcripts (Saunders & Lewis, 2012). The Atlas.ti codebook has been included in Annexure B.

The identification of patterns and themes and relevant categories / codes to categorise data was undertaken (Saunders & Lewis, 2012). Data coding started with the search for tendencies or trends in the data. Some codes were initially developed from the extant literature as discussed in the literature review and relevant theoretical frameworks but these codes were applied in a flexible manner to allow for supplementing and eliminating codes during the data coding process. Most codes were developed from the data which is consistent with the inductive approach. The most prominent codes were used to identify trends from the data. The process of induction was used to describe the empirical findings from the coding process, using theoretical concepts from literature (Fletcher, 2017).

4.11 Limitations

Researcher bias in the interpretation of data gathered through interviews was identified as a limitation of the study. The size of the sample might also not be representative of the population, and the findings of the study might not be generally applicable to all SOEs as the dynamics of the business environment might be different for other SOEs.

A possible concern was interviewer bias, where the behaviour of the interviewer might have influenced the way in which respondents respond to the questions or the interpretation of the interviewer of the responses given by the respondents based on his own frame of reference or beliefs.

Bias was managed by the researcher by prompting himself through objective and rational thinking and interpretation and where possible the researcher took the stance of neutrality. During the interviews, the researcher made sure that the conversations where not steered towards his preferences. An outsider’s perspective was taken in asking the questions and thus the researcher was convinced that the data was not flawed in any respect.

Respondent / response bias refers to the perceptions of the respondent that might have influenced the responses to the questions. Bias was minimised by establishing trust with respondents through proper planning prior to interviews and clear communication of the intention of the research.

The cross-sectional time horizon gave a snapshot view of the situation while a more longitudinal study might have been able to provide better insights as the companies dealt with disruptive situations and digital business strategy execution.

Obtaining access to the intended leaders timeously as well as the honesty and transparency of the respondent responses were potential limitations.

4.12 Assumptions

It was assumed that no regulatory or strategic changes would occur to the business environment of the targeted state-owned enterprises for the duration of the study. Further it was assumed that the researcher could gain timeous access to the interview candidates in the target organisations as discussed in delimitations below and that the responses to interview questions were honest.

4.13 Delimitations

The study was limited to seven South African state-owned enterprises in the information and communication technology sector due to limited access to interview candidates and because these companies' businesses are seen to be heavily impacted by digitalisation and more so than others.

4.14 Ethics of the Study

To promote honesty from respondents, each respondent was given the opportunity to withdraw or refuse participation so that data collection sessions involved those that wanted to participate. Respondents were encouraged to be frank and speak freely. The independence of the researcher was emphasised prior to starting each interview (Shenton, 2004). The respondents were offered confidentiality and they were informed that no individual names or company names would be reported, to ensure confidentiality. The respondents were each assigned a number based on the sequence of interviews conducted and their professional titles were noted.

To ensure that the research was conducted in an ethical manner, the researcher obtained ethical clearance from the University's Ethics Committee. The Ethical

Clearance approval is included in Annexure C. Informed consent was obtained from each interview respondent by requiring respondents to sign a consent form which is included in Annexure D. The consent form highlighted that participation was voluntary and that the respondent could withdraw at any time without penalty. The consent form further highlighted that the interview would be electronically recorded.

Chapter 5: Results

5.1 Introduction

This chapter presents the findings from the interviews of 13 executive leaders in state-owned enterprises who were interviewed for the study. The findings are presented in accordance with the research questions contained in Chapter 3. The results of the qualitative analysis of the interview data are presented based on the interview guide included in Annexure A to this report. The results provide insights on how the business environment will change for SOEs due to digitisation and digital transformation, how the leadership role in SOEs needs to change in the digital business environment and what shift in leadership skills are required in SOEs in the digital business environment.

This chapter starts with a description of the respondents in the study, followed by the presentation of the results from the qualitative data analysis.

5.2 Description of Respondents and Context

The interviews were conducted in a relaxed and safe environment and respondents were encouraged to articulate their views and express their experiences and thoughts. The interviews were conducted in offices and boardrooms at the companies the respondents work for. The duration of the interviews ranged from thirty-three minutes to two hours and two minutes.

Table 1: Summary of Interviews

Description	Quantity
Number of interviews	13
Total duration of interviews	1 063 minutes
Average interview length	82 minutes
Longest interview	122 minutes
Shortest interview	33 minutes

Respondents were assigned a number in the sequence of how interviews were conducted:

Table 2: Respondent Information

Respondent	Corporate title	Company
R1	Chief Operating Officer	Company A
R2	Chief Strategy Officer	Company B
R3	Chief Technology Officer	Company B
R4	Chief Executive Officer	Company B
R5	Chief Technology Officer	Company A
R6	Chief Operating Officer	Company B
R7	Chief Technology Officer	Company C
R8	Executive Technology	Company D
R9	Chief Information Officer	Company E
R10	Executive Strategy	Company E
R11	Executive Information Technology	Company F
R12	Digital Business Leader	Company F
R13	Chief Executive Officer	Company G

5.3 Results: Research Question 1

The first research question sought to understand the nature of the leadership environment that executive managers in state-owned enterprises find themselves in, the leadership approaches they take to managing the environment and the overall impact they anticipate digital transformation to have on their environment.

The qualitative data collected in section 1 of Annexure A were analysed and the results are presented in themes related to the interview questions.

5.3.1 Leadership environment in state-owned enterprises

The table below summarises the themes from the data for this interview question as well as the frequency of each theme occurring:

Table 3: Themes and frequency - Leadership environment

Theme	Frequency
Hierarchy	13
SOE environment	11
Bureaucracy	9
SOE mandates	5
Public vs private comparison	2
Sustainability	2
Leaders do not know it all	2
Rules and regulations	1
Efficiency	1
Ecosystem	1
Strategy	1
Leadership environment	1
VUCA	1
Balancing accuracy and good enough	1
Change at different levels	1
Self-disruption	1
Old vs new	1

State-owned enterprises are created through statute and therefore have a specific mandate to perform. One respondent argues that the public sector has tighter control systems for good reason and further highlights that from an economic point of view, SOEs operate with public funds and therefore are ultimately accountable to the tax-payer. The respondent further highlights that the natural forces that occur in the market and force companies to self-correct do not necessarily exist in the public sector. Where in the private sector, customers will switch service providers / products when unsatisfied, the public does not have that option with government and it is argued that the tighter controls are therefore justified. This does not mean that the public service inherently should be inefficient or ineffective, but it does require better planning and executing.

Most respondents describe their leadership environment in the context of state-owned enterprises and highlights some leadership challenges in the environment that they are grappling with. In summary, the mentioned challenges entail slow decision-making, procurement processes, regulations and governance requirements.

> R3: *"SOE's are currently under so much strain and pressure to deliver due to national obligations, having to ensure that governance and all the controls are in place."*

> R13: *"From a leadership role point of view then I need to operate [the company] within the confines of the mandate…you are limited in the degrees of freedom that you have in dealing with whatever situations you confront."*

Five respondents mention the role of mandates of state-owned enterprises. These mandates are the main reasons that SOEs where established and these respondents acknowledge that it is the responsibility of leadership in SOEs to deliver on their various mandates, provide services to the public in support of government and drive digital transformation.

> R3: *"As an SOE, it's our responsibility and our accountability to ensure that the nation follows us and the nation is enabled and serviced correctly…our purpose and our significance as an SOE is that we need to be the drivers of change in South Africa from a digital disruption or digital innovation or transformation perspective."*

> R11: *"And that is I guess the difference between an SOE and a private company. We have a social mandate and we need to support the government in terms of jobs and growth. So, we have to balance the level of digitalisation versus the social mandate of the organisation."*

In many ways, the mandates of SOEs also place pressure on the sustainability of the organisation.

> R10: *"…universal service obligation, where you've got to create access at a reasonable cost…So we have a lot of that in our environment where legislation forces us to provide access to services and we don't have enough or sufficient revenues to cover that…"*

Two respondents further expand on the differences between private and public sector organisations, highlighting the pace of decision-making and authority of decision-makers as key differentiating factors.

> R4: *"Leadership in state-owned enterprises is a bit different from what you do in the private sector. It's highly regulated and decisions that my counterparts would make in the private sector, take much shorter time than I do here, especially when it comes to issues of approvals. In private sector environments you will find that there's a lot more authority that is given to the CEO of an organisation… that does not prohibit one from structuring an organisation in the way that you think will be fit for the purpose of that organisation and its mandate."*

> R13: *"Obviously, if it was the private sector, you will still have to work within a certain strategic framework, but if you wanted to change that strategic framework, you go through the board and at most you can go through the AGM. Whereas, if I wanted to change that framework, the law has to change and that is completely outside of my control."*

In describing their leadership environments, respondents hold different views, some commenting on the macro environment and others commenting on the internal leadership environment and what it is influenced by.

> R2: *"The environment is very volatile and many things are unpredictable and uncertain. … In the past, we used to forecast, now there is difficulty in making forecasts, … we've got many problems with multiple causes that you can't really pin out…lack of clarity in what are we talking about? What are we dealing with? … It's an environment that is very disruptive"*

> R3: *"A fairly bureaucratic organisation … with layers of red tape along the way that not necessarily have to be there … slow moving … takes long to make decisions"*

> R8: *"We've moved from a very authoritarian to a more participative leadership, … where you'd rather get everybody around you to participate in decision-making."*

> R11: *"What influences what we do as leadership, it's largely based on the strategic direction of the organisation. It influences our programmes, our projects and also our culture. We look at what [are] the goals and objectives of the organisation and that influences what we do."*

All respondents highlight the leadership hierarchy that is in place in SOEs, starting with the relevant minister (as representative of government), the board and its various sub-committees (as recommended by the King Commission's guidelines on governance) to the CEO and other executive directors.

Two respondents highlight that leadership requires accepting that no individual is all-knowing.

> R1: *"No one has a monopoly on correctness and knowledge...from the lowest paid employee of the company to the CEO, everyone can teach me anything"*

Some of the respondents highlight specific points, not identified by the group in their individual assessment of their leadership environment. One respondent notes that their leadership environment requires a constant balance between focusing on accuracy and accepting efforts as good enough to make progress with strategy execution.

> R1: *"So it's trying to find that balance between saying enough is enough"*

Another respondent explains their leadership environment as dealing with change at different levels from organisational and groups to individuals and self.

> R4: *"It is about the ability to make the changes in the organisation fast and the changes in the groups that one has within the organisation and changes in individuals within the organisation. And I think most important is changes in self. So, that self-transformation."*

A different respondent reflects on the importance of the company disrupting itself before being disrupted by other players in the market. The respondent explains a new focus of the business towards digital transformation, where the company is not only looking at achieving internal efficiencies, but also diversification in terms of products and services.

Yet another respondent contrasts history and future in the leadership environment highlighting that different skills will be required and different tasks will be performed in the digital future.

> R13: *"… the skill sets are no longer the same skills as required now because technology has changed. So even if we're doing the same things, old and new comes into play and you'll find that everywhere in the corporate world. A second thing is, now all the new applies because the things that you're supposed to do also change."*

A strong theme that emerges from most of the respondents is the bureaucracy in SOEs which leads to slow decision-making, extensive governance controls and the resultant lack of speed in execution.

> R3: *"In an SOE, what I noticed is that again, they are more bureaucratic in nature, they are focusing on the political agendas that are going on and are trying to make sure they tick all the boxes and doing things the right way and so on."*

5.3.2 Leadership styles considered to be most effective

The table below summarises the themes from the data for this interview question as well as the frequency of each theme occurring:

Table 4: Themes and frequency - Leadership styles

Theme	Frequency
Balance different styles	4
Participative / consultative leadership	3
Ethical leadership	1
Strategic leadership	1
Value-based leadership	1
Transformational leadership	1
Ecosystem leadership	1
Democratic leadership	1

Respondents provide quite varied responses when asked about their leadership styles. The most common themes from the responses centre on the participative and consultative leadership styles, while others comment on finding the balance between autocratic and democratic approaches to leadership.

> R1: *"…more participative, people to discuss the issues, to talk and collaborate…"*

> R8: *"It's always been participative…I think your personality will reflect the type of leadership you want to entrench and I know that it works, because as soon as you make people feel part of the process, part of the decision-making, they take ownership"*

> R9: *"There is a little bit of an autocratic leadership, where you actually say look, this is what I want to do and we're going to go this route. And there is also a little*

bit of consultative leadership, where you need to consult, you need to get involved…But depending on the team that you are leading, you need to have a vision as well. It is just a mixture of everything…you need to apply a certain type of leadership in a certain type of situation and those situations are not standard and they are quite fluid as well."

R10: *"An autocratic approach to get certain things done and then you have to also allow the contribution of individuals, so you've got to have that mix of the democratic style of management. You listen to people, consider their inputs to move the environment forward…it doesn't work having a one-sided management approach because if you don't include and allow people to contribute into the leadership you have problems…frequent engagements with employees face to face to clearly communicate what are the strategies, what are the goals we want to achieve, what are these critical tasks that we need to do"*

Two respondents give similar answers by first emphasising participative and consultative leadership as key and further elaborating that a mixture of leadership styles is applicable, depending on the situation, while a third respondent also highlights different leadership styles for different situations.

R5: *"A good leader is the one that is participative, you have to be very participative because every now and then you will end up missing very important things. You need to be very close to the environment that you are leading…my experience here is that each one of the different leadership styles plays a role depending on the situation at hand…all types of leadership styles are applicable but it depends on the situation and the scenario."*

R11: *"There is no one leadership style that is most effective…different leadership styles in different areas…there are areas in our organisation that require precision, that requires the execution of tasks, that requires control…in this company we have very different leadership styles…I can't say there is one specific style, it is really situational"*

One of the respondents gives a different response emphasising the importance of ethical leadership, especially when focused on the future of automation and artificial intelligence where the technology could negatively affect humans.

R12: *"…in this area of digital transformation, there will be a lot of disruption…when the disruption might be in a bad way – ethical leadership will be required. And I feel that is where I will be strong in terms of that."*

Another respondent draws a comparison between what they consider to be visionary, strategic and managerial leadership in terms of horizon of focus suggesting that strategic leaders must be flexible, agile and innovative.

> R2: *"I understand it to be a leadership that is strategic, that you have a long-term view of things, but at the same time you make sure that the short term is happening. So that is more linking the short term and the long time, unlike the visionary which only looks at what is happening in the future, inspire you for the future, but not getting things done in the current, but the managerial will just be focused on the now. So strategic leadership therefore means it has to be flexible, it has to be agile and it has to be innovative. It requires critical thinking"*

Three of the respondents further highlight leadership styles built on trust, motivation and consultation with only one respondent mentioning transformational leadership.

> R3: *"…leadership style of any great organisation is one that is transparent, inspires trust, inspires living the values of the company, inspiring buy-in to achieving the company objects, ignite passion and a sense of purpose"*

> R4: *"…a transformational leadership style is what I have adopted and embraced…we try and lead by a consensus…being more consultative, more influencing people and convincing them of the direction that you want to take. But transformation and change towards the technology and bottom line, change is very critical here. That mindset change is what's going to lead us to success"*

> R6: *"I subscribe to a very democratic way of dealing with things. I assemble teams based on trust … I believe a lot in shared value models, if there is a benefit coming out of this organisation the society within which you operate must benefit, our employees must benefit and the shareholder must benefit … my leadership style is based on trust and professionalism"*

Finally, one respondent shares his views on leadership style while in the process of a business transformation.

> R13: *"The leadership challenge is almost an ecosystem leadership...and it requires leadership in technology, leadership in people and talent, strategy, execution, financing, all the aspects…It has to be an active leadership style, you are not managing an operation, you're managing change of a world. So, you have to be an agitator and a visionary, you have to have a lot of energy and resilience because there is inertia and the system is moving in the wrong direction. It has to be a*

knowledge based leadership style … You don't have to have the depth, but you must have the breadth of insight into the technical environment…You work through a leadership team, so you have to have a competent leadership team…That's the leadership style that I think is most effective in terms of this journey."

5.3.3 The impact of digitalisation and digital transformation on state-owned enterprises

The table below summarises the themes from the data for this interview question as well as the frequency of each theme occurring:

Table 5: Themes and frequency - Digital transformation impact in general

Theme	Frequency
Significant impact	13
Various improvements	7
Entire business impacted	2
Diversification opportunities	1
Communication improvement	1
Efficiency improvement	1
Productivity improvement	1
Customer expectations	1
Employee impact	1

Apart from the specific areas of focus discussed in sub-section 5.3.3.1 to 5.3.3.5, respondents mention various other areas where digital transformation will have an impact on SOEs.

All respondents hold the view that digital transformation will have a significant impact on SOEs and some of the general comments include opportunities for diversification, improve communication, changing the entire business and how it operates, customer expectations and the impact on employees.

R12: *"…we're seeing a lot of opportunities on creating new business models…"*

R9: *"It will transform everything that we do"*

R8: *"It changes everything that we know…workflows, how we do things, how we plan things, all of that goes out the window and it's a disruptor."*

R6: *"I look at digitalisation impact overall being positive. It improves quality of services, it brings about efficiencies, it improves quality of jobs."*

R11: *"…there is now strategic intention to actually become a digital organisation…it can have quite an important impact on the company becoming more productive"*

R3: *"It's all about the people and the impact that it has on those people… the biggest challenges are adopting and adapting to that change"*

Some of the respondents also comment on the expected improvements that will come with digital transformation which include improved business intelligence, performance, response to customers and competitors, job quality, safety, trust relationships with employees and customers and collaboration with partners.

The five pre-determined focus areas of strategy, business model, culture, structure, processes and systems are discussed in the following sub-sections.

5.3.3.1 Strategy

The table below summarises the themes from the data for this interview question as well as the frequency of each theme occurring:

Table 6: Themes and frequency - Strategy impact

Theme	Frequency
Clear vision and self-assessment	9
Diversification opportunities	7
Internal efficiencies	6
SOE context	3
Skills and culture	2
Competition	2
Alignment	1
Cyber-security	1
Customer needs	1

Respondents were requested to articulate the key areas of focus of their current or future digital transformation strategy. Most respondents first indicate the need for a clear vision of what the organisation wants to achieve through digital transformation, followed by a self-assessment of the organisation in terms of its employees, processes and technology to achieve the vision. Most respondents recognise the opportunities for diversification

with new products / services that leverage digital technology as well as the internal efficiencies that can be achieved with some mentioning that a digital transformation strategy should be all encompassing and is not just a technological change.

> R2: *"…like any other strategy, a clear vision of where we want to go. This is where we are and this is the desired state, so clear vision with clear objectives… if we have our digital strategy, which is able to cut costs, it becomes easier to change how things are happening like the speed of how we deliver and so on."*
>
> R11: *"The new strategy is about becoming a digital organisation. The opportunity to re-invent ourselves and diversify our service offerings is what's driving the digital strategy."*
>
> *R5: "Alignment is very important…You need to understand where we are now and where we are going in the coming next ten years"*
>
> R8: "*…the strategy is all encompassing…You need to start thinking digitally…digitalisation shortens the lifespan of everything, time to market for a product, decision-making needs to happen much quicker...workflows are extremely important in this new digital world…"*
>
> R12: *"…the three key elements we have in our strategy … the first is digitising the company, transforming the way we're doing business from [an] IT perspective…the second is focusing on customers, giving a new experience to customers … the third is digitising the operational environment for better service delivery…"*

One of the respondents explains the importance of having a digital transformation strategy to avoid various unaligned digitalisation activities across the organisation.

> R1: *"…you will end [up] doing things without a clear plan on why you are doing them and you may have to discard them later because they don't fit into the bigger scheme of things."*

Some of the areas that respondents place high emphasis on include employees in terms of skills and culture, cyber security, competition and customer needs / consumer trends.

> R3: *"…start with where do we want to be in the next five to ten years, our objectives …assess where are we right now, from the people, process and technology perspective, starting with people…when we do the how-to plan, we need to focus on the people as they are most important, you need to bring them along from a skills and culture perspective…invest in the right technologies to take the company*

to where it needs to be, and then of course, you need to get the right processes in place…"

R9: *"…If the user wants this, then we need to move it in that direction, or what is it that the user will want in the future…"*

Three respondents highlight the context of state-owned enterprises that further influences the strategy in terms a social mandate towards job creation / retention, socio-economic demands, policy, regulation, funding and investment. For many SOEs, digital transformation is seen as a disruptor as well as an opportunity to remain sustainable, while delivering better services to the public.

R4: *"So, our strategy then must focus on transforming the business, how we do business, the processes that we follow…looking at digital transformation holistically…our view should be to look at the ecosystem in a digital environment and the new opportunities ... but as a state-owned enterprise we have a social imperative where cutting people's jobs is the last resort."*

R7: *"The government policy and regulation, especially considering that we are a state-owned enterprise, it does shape our strategy to a large degree"*

R10: *"…in formulating the strategy we need to look at what we really want to do in terms of capital investment into the business."*

5.3.3.2 Business model

The table below summarises the themes from the data for this interview question as well as the frequency of each theme occurring:

Table 7: Themes and frequency - Business model impact

Theme	Frequency
Opportunity for new products and markets	4
Business transformation	3
Efficiency	3
Improved customer service	2

In evaluating the impact of digital transformation on the business models of SOEs, respondents articulate how they believe the business model for the internal and external environment will change and discuss both the positive and negative impact thereof, some

expressing serious concern regarding sustainability, while others recognise significant opportunities.

> R11: *"Digitalisation presents us with an opportunity to go into new markets, to go into new business models and investigate, if digital can bring in value-added services on top of our core business."*
>
> R2: *"… digitalisation means that we have to move, change our business. If your business is affected, disrupted, you need to change your models…it will affect how you produce your products and services, how you reach your customers…the digitalisation strategy must be able to help you in reaching your customers as it is essential for the business model in terms of how we generate revenue."*
>
> R7: *"We have deliberately started to evolve our business strategy, so that we start going into vertically integrated products."*
>
> R3: *"It will change the business model because it changes the way we're going to conduct business going forward, it's going to change the value propositions that we take to market…it's going to change two-fold, internally as well as externally."*
>
> R9: *"The whole business actually has to reconfigure, because the business is no longer being done in the old way."*
>
> R8: *"…if we stick to the way we've been doing things, our customers will move away to digital and online services, so we have to change the way we do things, it's as simple as that."*
>
> R10: *"…we are seeing the impact of digital on our business and for us it's about survival now because volumes are really declining. It would change the business model because it really changes the future of how we operate as currently we are a very resource-intensive business."*
>
> R4: *"…it certainly should change because we are used to a situation where customers had to come to us to provide them with service, but now our focus should be to develop that basket of services in a digital environment and go out to the customers to offer these different tiers of our product and service. The business models should also change in how we enable remote management of national system performance."*

Some of the SOEs are the sole providers of their service in the country, with very limited competition or potential disruption by new entrants and therefore, there is a greater focus

on internal efficiencies and productivity improvements and less on product diversification.

> R5: *"…the reason why efficiency is brought into the picture is because you want to improve productivity. In the long term, productivity talks to profitability."*

One respondent further explains the expected efficiency from digitalisation in terms of centralised operations and remote management of systems.

> R6: *"The digital environment integrates everything and brings about a national management and visibility, we will have an integrated centre of visibility, so all those operating activities becomes manageable now in a central point."*

One of the respondents' explanation is very interesting on how digitalisation enables them to evolve the customer-facing function to become the innovation centre for the business, performing a dual function of pushing customers towards digital services while also being a disruptor internally by challenging technical and operational staff to deliver on the customers' changing requirements.

> R13: *"The digital journey can help me almost tactically. I can incrementally change my cost structure, I can incrementally change and add features to my product set or get even more market share, but on the same type of market, which doesn't change much. The idea is to change our customer-facing function to be a disruptive function. Where I used to have a function that was taking care of customers, trying to sell some products, it is suddenly a creator of new things. That's where my innovation engine is. I am embedding the disruption in the value chain of how we work. At any point in time, they are always looking for problems and pushing for solutions. This does require a different skill set though."*

5.3.3.3 Culture

The table below summarises the themes from the data for this interview question as well as the frequency of each theme occurring:

Table 8: Themes and frequency - Culture impact

Theme	Frequency
Deeply entrenched culture	3
Resistance to change	3
Change driven by top management	2
Unlocks human capacity	2
Change to workplace	2
Mindset / attitude	2
Culture change prior to transformation	1

All respondents agree that the culture of an organisation will change, and acknowledge that it is probably one the biggest challenges in the digital transformation journey and requires a change in mindset. Many respondents further note that their existing cultures are deeply entrenched and high emphasis is placed on the change initiative to be embodied and driven from the very top of the organisation, where leadership must set the example.

> R8: *"We are very set in our ways, with long and strenuous processes to get things done. In the digital world, you need to be agile, make quick decisions and act on those decisions…top management plays a critical part in changing the culture."*

> R10: *"With the current culture, there is no sense of urgency and no consequence management. Leaders must lead from the front in the culture change. If your people don't see you leading the way, they will just stay in this old culture...This needs to be a massive change management programme for transformation…"*

One respondent notes that the culture in companies that are digital since inception is very different than in old, large companies. As digitalisation and digital transformation often involve some form of automation, employees could feel threatened and in extreme cases even sabotage the digitalisation efforts.

> R11: *"Automation or digitalisation has an impact on how people execute their duties. From that perspective, there is a culture shift. That is where people need to*

understand the role of automation. We have had projects, where people intentionally tried to sabotage the system. Simply because the culture doesn't exist."

This is because the intention and benefit of the digital transformation have not been clearly communicated and explained, which highlights the need for proper and regular employee engagement with leadership setting the example.

R3: *"Digital transformation does impact culture. Initially, people will experience uncertainty and insecurity. But I think, as they get accustomed to the strategy and are engaged on the reasons and individual benefits, they will become excited."*

R5: *"… if people don't see and understand what it means, it means nothing. So, the most important thing is alignment …"*

A few respondents comment that digital transformation could in fact reduce certain tasks currently performed by humans, but two respondents see this as a positive factor in terms of creating internal capacity for employees to focus more on creative type of tasks that cannot necessarily be automated or cannot be performed even by artificial intelligence.

R6: *"… how do you, with the current base of resources then because of digitalisation efficiency, do more as an organisation as opposed to say you are going to lose jobs, no, it will enable you to have a little bit more capacity and once you have more capacity, you are able to do more as an organisation."*

R8: *"…automation has taken that repetitive task that an employee has to do and automated it, which now releases that employee to do more creative stuff."*

One respondent explains their move to a connected workplace environment, where employees can work in any location, not necessarily on the premises and the positive effect it has on culture thus far.

R7: *"The culture from that perspective has become more trusting in terms of the organisational strategy…the digitisation culture versus the productivity culture, at some stage there has to be some synergy, where you can make it work"*

Further, two respondents reflect on the importance of the correct mindset and attitude to implement the culture change.

R2: *"For us to change culture, we have to change what people do but I think it will also require a change of mindset, because culture talks to the minds and hearts of*

people. People tend to resist change and therefore we need to have a clear culture programme and change management."

R4: *"The culture of thinking innovatively, thinking about problem solving for customers is key for our success as well as urgency, speed and agility…It is an attitude of our people, we need to influence people to change their mindset to have a sense of urgency in terms of delivering of service…it is that culture of collaboration that we need. The environment, we need to build it in such a way that it is promoting the culture of collaboration."*

One respondent states that there is no point in continuing with digital transformation, if the culture does not change, as the success of the journey is primarily dependant on the culture.

R12: *"… if the culture doesn't change, we might as well park the digital transformation strategy… I argue that [digital transformation] has to be owned by everybody across because each and every process is impacted."*

One respondent explains their approach to transforming culture for a digital future by creating a fun and innovative space in the workplace environment where employees can socialise, and inserting dynamic and energetic employees (what they call agitators) in this environment results in an influence on the culture. They are observing the culture evolving to a more open and agile culture and accept that not all individuals will be comfortable with the new culture and those might move to a different organisation.

R13: *"…you need agitators and you have to be tactically aware of your environment. The minute you stop observing and processing your environment, you are not on the digital journey...and for me that's the minimum criteria… So, if they are uncomfortable at some point in time, it is okay."*

5.3.3.4 Processes and systems

The table below summarises the themes from the data for this interview question as well as the frequency of each theme occurring:

Table 9: Themes and frequency – Impact on processes and systems

Theme	Frequency
Agile processes	13
Change to systems will enable efficiencies	3

When asked if and how digital transformation will have an impact on processes and systems in the organisation, all respondents comment that they believe both processes and system will require changing in a move to a digital environment.

> R9: *"…your processes will change at the end of the day, it becomes digital, is becomes nimble…digital will call for changing process, changing approach, changing attitude, changing alertness."*
>
> R8: *"…normally these changes in workflows comes about when you install a new system…"*

A key concept that emerges from the data is that systems will bring the enabling technology, and due to the new capabilities of the system, the processes can be optimised or redeveloped to unlock internal efficiencies and new marketing channels and customer engagement platforms.

> R3: *"It's about automation, innovation, doing things … maybe the same things in innovative ways to save time, to be more efficient, to be more productive as well as the channels of taking products and services to market. So, it does impact processes."*
>
> R11: *"…automation brings with it the opportunity to bring efficiency, speed and agility into your process…"*
>
> R6: *"…a digitalised environment enables integration, not just with the ERP, but also with our customers…"*
>
> R10: *"…some of the things we really need to look at, like infrastructure for example, attracts cost and you have more space than required…and the systems that support it like just-in-time (JIT)…"*

5.3.3.5 Structure

The table below summarises the themes from the data for this interview question as well as the frequency of each theme occurring:

Table 10: Themes and frequency - Structure impact

Theme	Frequency
Hierarchy will not work, needs flat structure	8
Certain functions will not be required	5
Matrix structure	4

Most respondents comment that the structure will probably flatten in a digitally transformed environment, with some mentioning that a matrix structure might be a better fit for SOEs in future. Many respondents further mention again that certain functions in the organisation might not be required in a digital environment.

> R3: *"Your strategy determines the structure. Digital transformation is part of that strategy…you might not need as many people that you would need right now…because digital transformation enables faster decision-making, it's more efficient. You can work in a matrix organisation."*
>
> R11: *"…definitely an impact on structure…automation removes certain functions; digital transformation creates new roles / functions…agile does not function very well in a hierarchical structure…you may move towards a more matrix structure because you want to bring in agility in your processes and your thinking and in your deliverables."*
>
> R5: *"I see it in the long term flattening the structure, because the reason for a hierarchy is for delegation purposes."*
>
> R8: *"… it forces you to start breaking down the vertical silos that everybody works in and to start working in a horizontal flat organisational structure."*
>
> R10: *"… digital will definitely break up and thin out the structure to be a bit more lean and efficient…when you're talking digital you must have an innovation hub."*

One of the respondents believes one of the reasons for a hierarchy structure is employees with expert power positioning themselves. This respondent also acknowledges that a form of structure is needed in SOEs, but importantly highlights that it does not translate to bureaucracy.

> R2: *"The digital environment will affect the structure and increase the flow of information, but it will probably affect the hierarchy more, where people position themselves because of what one calls expert power…for us, especially with the legislative requirements, the regulatory environment, you need a form [of] structure, that structure doesn't necessarily have to be bureaucratic."*

Another respondent highlights that the structure is a means to achieve the output of delivering on customer needs and regardless of the internal structure, different functions need to collaborate in serving the customer and that no single type of structure will fit all situations and organisations.

R4: *"Look at how you can come up with a matrix model, for instance that will enable people to deliver to a customer's needs… collaboration between different departments is what is going to help us deliver effective service to our customer…considering a digital environment, there's probably not one structure that will be best in all circumstances…"*

Yet another respondent adds an interesting point of view in terms of developing multi-skilled resources, regardless of background, to deploy in diverse situations, while acknowledging the change of mindset required and that a matrix structure has potential, but requires leadership and staff maturity to be effective.

R6: *"I am pro a matrix structure in that it could be used for diverse reasons but understanding that it needs maturity in leadership and people's thinking…we should allow agility to build diverse skills that we can leverage for different solutions, based on their capability, agility and availability …this will of course need a lot of minds to change"*

One other respondent echoes a similar view in terms of team leadership and highlights the importance of delegating decision-making to the relevant operational levels to promote agility.

R12: *"The hierarchical structure cannot work going forward because fast decision-making will be required, it will have to be a flat structure… when focusing on a certain initiative, we decide who becomes the lead for that initiative because of their expertise, experience and availability. I find this model working very well... To get fast or quick operational decision-making, you need to delegate."*

In contrast, another respondent does not believe the top structure would change but also mentions the emergence of agile teams at project implementation level.

R9: *"…there are certain jobs that are going to be obsolete, some roles that will become irrelevant. The hierarchy will remain, because that's the nature of the business, but you will find more and more agile teams with multiple skills that focus on projects and deliver fast"*

5.3.3.6 Additional themes

The first additional theme that emerges from the data is agility, where respondents emphasise the need for agility in the digital environment, with three respondents articulating it well.

R11: *“One of the core pillars of digital transformation is agility… agile and thinking agile is quickly put as one of the criteria to become a digital organisation…with digital, speed and agility is very important, speed to market.”*

R1: *“… it's the small guys who can really can be very nippy and zippy and are not encumbered by all these decisions that have to be going all the way up.”*

R8: *“I think traditional leadership styles and thought processes and so on, will not work in a digital environment. You need to be agile, you need to think on your feet.”*

The second additional theme is automation, with three respondents highlighting various key points in terms of balancing the implementation of automation with workforce impact, reducing potential human error and increasing efficiency.

R11: *“…digitalisation looks at the automation of a lot of mundane activities…we have to balance the introduction of new automation with the impact on the workforce. The company is becoming less dependent on human capital, but conversely, there is a higher risk of labour disputes. Sometimes, we actually have to hold back because that could have a negative impact on our social mandate.”*

R1: *“…it'll reduce the errors that we have, and it will allow people to focus on the core business of making more intelligent business choices and professional decisions as opposed to focusing on routine things, which could be done by other things."*

R6: *“There is a lot of automation coming out of artificial intelligence as well, which is good from efficiency point of view.”*

The third additional theme is efficiency, where five respondents note that digital transformation offers opportunities to improve efficiencies in these SOEs. This focus on efficiencies can be explained by the other factor that many respondents mention around approval and procurement processes that move slowly.

R2: *“It will present opportunities in terms of efficiencies…we need to digitise everything...our processes must be very efficient, we must react quickly to the customer's requirements.”*

R6: *“As a leader, I focus on the positives, which is operational efficiencies, if you have to think about digitisation in terms of resource utilisation and operational cost reduction.”*

R7: *"You can virtually work from anywhere, so we have embraced the digitisation to make it more efficient for us."*

R5: *"The biggest impact is efficiency, because that's why we actually go the digitalisation route"*

A very interesting topic is raised by two respondents that deal with the generational impact of digital transformation. They note that the older generations are more reluctant to accept a shift to the digital world, especially the employees who have been with the organisations for longer tenures and are used to their way of doing things and the way the business has operated in the past. Further, they note that the younger generations, who are more excited about the digital future, are becoming the current leaders in these organisations, where they are able to adapt to innovation and digital disruption.

R3: *"…millennials…generation X…they are now becoming the leaders in the organisation, who are able to adapt… millennials and the Gen X become more excited about innovation and digital disruption … more so than the Baby Boomers, they're a little bit reluctant."*

Lastly, the root cause for a lack of speed and agility in SOEs is highlighted to be the lengthy and stringent approval processes, lack of accountability, a culture where there is no pain or penalty if they do not deliver to a customer, but also fear of failure.

5.3.4 Business environment changes

This section discusses how the business environment is expected to change in the next five to ten years by identifying opportunities, challenges and risks to digital transformation in SOEs.

The table below summarises the themes from the data for this interview question as well as the frequency of each theme occurring:

Table 11: Themes and frequency - Business environment

Theme	Frequency
Innovation, disruption and opportunity	4
Uncertainty due to macroeconomics	1
People and skills development	1

All respondents are of the view that the business environment will change in the next few years with some raising macro-economic factors as a cause for uncertainty, others recognising opportunities to offer new and different products and anticipating disruption of current business models

> R3: *"The business environment will definitely change… a whole lot of innovation, digital disruption and various fourth generation technologies will be the norm in the next five years… new business models in terms of how companies operate, how companies offer products and services to customers and what products and services they offer."*
>
> R2: *"…with factors such as the economy…the unemployment rate…the inflation rate…politically… that brings uncertainty in terms of the environment because most of the things depend on the political."*
>
> R4: *"…digital transformation is an opportunity for us to provide new services, but it challenges the leadership that we have in terms of new innovative products and leveraging this digital infrastructure to generate revenue."*
>
> R8: *"The business environment will change quite dramatically, because the fight is on for our main source of income… you either disrupt or you are disrupted…we have teamed up with our competitors against new disruptive entrants."*
>
> R13: *"…you have changing customer requirements. Our customers provide services to the external world, so their requirements are changing because their world is changing, their customers' requirements are changing because their world is changing…"*

One respondent further mentions the need to upskill employees to remain relevant in the changing environment, emphasising not only technology-oriented skills, but skills across the business.

> R7: *"…we are evolving because of digitalisation and therefore we need to reskill our people…not just the engineering people, but also the sales people. They have to be able to learn to sell new products…They have to be able to deal with new customers…we have to transform the way they work, we have to do it actively – otherwise they become obsolete."*

5.3.4.1 Challenges for SOEs in a changing business environment

The table below summarises the themes from the data for this interview question as well as the frequency of each theme occurring:

Table 12: Themes and frequency - SOE challenges

Theme	Frequency
Increased competition	3
Digitally competent workforce	2
Corruption	1
Rate of adoption	1
External environment	1
Skills retention	1
Lack of enabling IT environment	1
Lack of focus on long-term revenue growth	1
Generational differences	1
Procurement processes	1

The issue of corruption is raised by one respondent as a reason for the lack of speed and agility in SOEs. Corruption is a societal problem, and regulations and legislation have been put in place to limit corruption and mismanagement of funds. It is proposed that corruption has fuelled a culture of being overly cautious and protecting oneself as processes are meticulously followed. Further, it is stated that corruption forces a bureaucracy in how things are done, which wastes time and resources.

> R3: *"We have deep-rooted corruption in various aspects of our country… it breeds a culture of protecting one-self and making sure that you tick all the boxes, because you don't want to be considered as being corrupt…it breeds an entire bureaucracy around how you do things, and that's consuming time and resources."*

Respondents note many different challenges that they currently experience, which could also impact the digital transformation journey. The challenges can be summarised as increased competition, rate of adoption, lack of skills that are needed in the digital environment, external environment factors, competent workforce, skills retention, lack of enabling IT environment, lack of focus on long-term revenue growth (only focusing on short-term activities) and not understanding customer needs.

R1: *"…but together with that opportunity comes a threat of other entrants doing the same, more competition."*

R3: *"…the rate of adoption is very slow. So, people again are resistant to change, they are resistant to doing things in a new way…we need to move faster. Otherwise we're just risking the entire SOE business, we are risking the national objectives that we are supposed to be delivering on."*

R2: *"A challenge would be competition due to industry consolidation…it becomes a challenge when there is an alternative, when the technology becomes more disruptive…we're going to lose customers, we are going to be irrelevant and our revenue will be affected. That is a big challenge for us and if we don't reinvent ourselves, we will die."*

R4: *"The challenge we face is the skills that we need in the digital environment… we don't spend our time thinking about investment in projects that is not going to generate immediate revenue…we're under pressure for revenue and therefore our level of innovation gets limited by the fixation on generating immediate revenue."*

R6: *"Sustainability and the external political and economic environment is also very key challenges for us."*

R8: *"I think the challenges is a competent workforce. Your digital technology is very sophisticated and you need highly trained, very competent guys to look after it…you need to be very agile…also retaining skills…"*

R10: *"Some of the things get documented but they never get implemented…that's a challenge…a key pillar to support the digital transformation is an up-to-date efficient IT environment…the IT platforms that support this business don't have digital capability, integration capability...we don't really understand our customer's needs…delay in time to implement…labour is a challenge…"*

Another interesting view expressed is the impact of different generations on the digital transformation and it being a cause for lack of speed and agility in SOEs. One of the respondents highlights that currently, many leadership positions are held by older generations that are more reluctant to adopt new ways of doing things; therefore, they could be a challenge that is faced by organisations looking to transform digitally.

R3: *"We have the Baby Boomers who are not used to technology, they were used to doing certain things a certain way. So, for them to transform the way of thinking and doing things is very, very difficult. Then you have the Millennials and the Gen*

X that are used to doing some things very different. Then you have the kids of today that are connected to their phones all the time. In the next five to seven years, we might not have that issue any more, because a lot of the Baby Boomers would have retired and moved on. A lot of the Baby Boomers are in leadership positions at this moment in time and they are holding us back."

Another big issue raised by almost all respondents are the strenuous and time-consuming procurement processes that SOEs must follow to ensure compliance with regulations. One respondent comments that even though this is a huge challenge for SOEs, the situation must be accepted and instead, SOEs must implement the necessary systems that can enable the processes to be followed faster and also that leadership can mitigate this through better and timeous planning. The respondent does, however, acknowledge that these regulations stifle SOEs that operate in a competitive environment.

R4: *"Obviously we are constrained…this is where the innovation should come in. The rules are not going to change, we must accept that, but our thinking can change and then enable us to come up with more innovative ways of managing it… we can mitigate against those risks and the impact of rules and regulations by planning better… [the regulations] are not good for SOEs...they need to be changed to enable us to compete."*

5.3.4.2 Opportunities for SOEs in a changing business environment

The table below summarises the themes from the data for this interview question as well as the frequency of each theme occurring:

Table 13: Themes and frequency - SOE opportunities

Theme	Frequency
Opportunities for exploration	5
Opportunities for exploitation	5
Better fulfilment of SOE mandate	2

Almost all respondents comment on the opportunities they see for their organisations in the next five years. Most of the opportunities identified relate to how digital technologies can be used to offer new / diversified products and services, and how these technologies can be used to retain customers by offering improved solutions. Key aspects from the responses are opportunities brought forth by the fourth industrial revolution, leveraging

current capabilities and new technology and the opportunity to expand to new markets. Two respondents specifically mention the opportunity to better fulfil the SOE mandates by creating economic opportunities for communities and decreasing the gap between those who have and those who do not have in terms of infrastructure and access to services.

> R3: *"The opportunities are all around digital innovation, connectivity solutions and then of course the IT solutions on top of that connectivity solutions."*
>
> R2: *"We need to start with opportunities brought by the fourth industrial revolution, because it's bringing massive change that's going to affect every business…there's an opportunity for us to innovate because our competitive advantage has been that we have market power dominance in our infrastructure…we need to come with innovative products so that we can retain current customers...take our current products to new markets internationally…with the public sector there is a big opportunity"*
>
> R1: *"It opens markets for us to actually provide a service to a number of African countries…"*
>
> R4: *"Speed of delivery is key...opportunities in the so-called fourth industrial revolution, where competition is not on infrastructure, but it is mainly on the services…the opportunity for us is to leverage our skills and infrastructure to enable these new services…we have an opportunity to influence government policy... so that when it comes to services, are we talking about closing the access gap...for instance, connectivity...the state-owned enterprises are the ones in my view who...are mandated or should be mandated to close that access gap and be the ones who are the champions of closing the access cap."*
>
> R7: *"To provide digital services to the poorest of the poor…in the communities… empower people in those areas…generate an economy, where they are…it's opportunities from a people perspective…from a company perspective…from a business perspective…that across the board…you will be looking at."*
>
> R10: *"…opportunities through partnerships…opportunity to retain those customers with an alternative digital solution."*

Other opportunities identified by some of the respondents also include value chain integration to have better visibility of system performance and be able to provide improved customer service supported by data.

5.3.4.3 Risk for SOEs in a changing business environment

The table below summarises the themes from the data for this interview question as well as the frequency of each theme occurring:

Table 14: Themes and frequency - SOE risks

Theme	Frequency
Lack of pace of adaption	2
Competition from new entrants	2
Sustainability	1
Cyber security	1
Regulatory limitations	1
Generational gap internally	1
Unemployment	1

Respondents were requested to identify risks they foresee due to the changing business environment. Some respondents reflect on the lack of pace in adaption to changes in the environment as risk to future sustainability

> R3: *"One of the greatest risks is that we are not fast enough, we are not agile enough…if we do not speed up our activities and digital transformation, both internally as well as take it to market perspective, we will be left behind, and the private companies will eat our bread and butter…because we are so slow, because we are so hampered down by bureaucracy, we are holding the country back."*
>
> R4: *"…slow processes, low speed of delivery and the change in the environment... change of policy."*
>
> R6: *"…sustainability and depleting profit margins…"*

Cyber security also emerges as a potential risk shared by a few respondents.

> R5: *"Data sovereignty…protecting against the external world, especially the digital side."*

Other risk identified pertain to regulatory limitations, competition from non-traditional competitors, and the generational gap of employees, where a rapid shift in mindset and ways of working is expected when the "old school" retires, which poses a continuity risk.

R7: *"…number one, these over-the-top suppliers…killing the smaller companies…number two, they will kill those companies or absorb them, to the extent that they end up being super giants…unlicensed companies encroaching into our area because they don't have all these requirements and restrictions and penalties to impede them…"*

R12: *"…some of the opportunities, which we can take… this regulation becomes a barrier… and the pace of change in legislation…the competition will come in and take the opportunity, while we are still waiting for the regulations to change…"*

R8: *"The old school, and new school, and there's a very big gap between the old school, and the new school, there's nobody in between, that is a big future risk."*

One respondent comprehensively assesses the risks in various parts of the business, highlighting some risks external to the business, but emphasising that no opportunity comes without risk.

R2: *"I think the risks are many, wherever there is an opportunity, there is a risk…competition from incumbents…the biggest risk is a sustainability risk because we will be unable to make money because our customers are not happy with us or we are unable to sell products that are innovative or appealing at an affordable price…on the digital side, the biggest risk has been cyber security…the risk of unemployment because the more we digitise, some jobs will be lost and they will bring some social instabilities, which will result in people being dissatisfied and social imbalances will be affected…economy risks, volatility in currency and the market…our biggest risk is inability to adapt to change…as an SOE, we are in the political environment and anything can happen."*

5.3.5 Use of technology and innovation in exploration and exploitation

The table below summarises the themes from the data for this interview question as well as the frequency of each theme occurring:

Table 15: Themes and frequency - Use of technology and innovation

Theme	Frequency
Separated exploration and exploitation	13
Innovation for operational efficiency	7
Innovation for new products	5
Leveraging data	2
Develop innovative people	2
Business-wide innovation	1
Immersion	1

This section presents the findings regarding the use of technology and innovation initiatives in exploration and exploitation efforts, internal and external to the SOE businesses.

> R2: *"On the issue of technology and innovation. For me, they go together ... innovation for me is doing things differently and for you to do things differently, as a leader you look at your products, you come up with different products or do them differently and it's not only products, it's processes, it's new innovative ideas...Then, how do you execute that - you need technology or in the process you innovate a new technology or your technology enables you to be more innovative."*

First, on the use of technology in exploitation efforts, some respondents highlight the use of technology to achieve internal efficiencies, with two respondents specifically mentioning the importance of data to inform decision-making.

> R6: *"…we will also use technology and innovation to improve the overall organisational operational efficiency…"*

> R4: *"I think automation and focusing on shortening the lead time in everything that we deliver to all customers, be it internal customers or external customers."*

> R8: *"…just streamlining your operations and leveraging of what the digital technology enables you to do. That's the biggest thing that we have to do currently"*

R11: *"Digital, in our case, is still looking at efficiencies. It is not yet looking at cash-generating activities…What value do you create out of data? Once I can create value, I can then sell a new service to the customer…we're investing heavily in an artificial intelligence, in machine learning, and in this new skill called data science."*

R5: *"…knowledge management…getting data that can be used to make better informed decisions…"*

Other respondents elaborate on the utilisation of technology to explore new opportunities.

R11: *"We started looking at - how do we do conceptual studies? How do we then test those new technologies? Once we find a solution, how do we bring it back into operations? The idea is to spin up as many POCs (proof of concept) as possible, test it without having to be constrained by business problems. Test it in isolation, look for innovation, look for opportunities, unlock those opportunities, and then go through a process of operationalising it."*

R4: *"…but technology and innovation, we should be using that to develop new products and new services for our current customers and creating new customers."*

One respondent further mentions using technology to prepare the business for the future, while growing the current business ventures.

R6: *"You also need to use your technology development and innovation to make yourself future fit…technology will be used to grow current business scale to sustain and make the organisation fit for the future."*

Another respondent further highlights the focus on training employees to remain relevant from a skills perspective and the opportunity for collaboration with suppliers and competitors, sometimes referred to as coopetition.

R7: *"…from an innovation perspective, we're training our people to migrate from traditional technology, we force our people to attend the training that will force them to remain relevant…also the collaboration that has to take place…with other suppliers…and competitors, because now we see that you can't just duplicate everything…You have to work with somebody with something."*

In terms of leadership finding a balance between focusing on exploitation and exploration efforts, some of the respondents are of the view that there cannot really be a separation in focus and that leaders would need to attend to both simultaneously.

R1: *“I won’t separate the two. You need to be looking at both and just doing internal issues to respond to the changing environment outside.”*

R2: *“Both because … while we are focusing internally, the world is changing around … You might be busy trying to develop new products and be innovative about the world that is no longer there. So that becomes a problem for you and you become irrelevant.”*

R4: *“I think the internal efficiencies put together with innovation or we must innovate to make sure that we have got efficiencies internally and also innovate to ensure that we develop new services for and with our customer. And then I think we can keep that balance, because I don't think you can have one without the other.”*

R8: *“So the balance, I'd say is equally 50/50 but it's driven by two separate entities within the organisation, but both for the greater good of the organisation”*

One of the respondents has a slightly more employee-focused approach in terms of reaching a balance stating that while leadership must be customer focused, it must also look after its employees so that they can deliver on customer requirements.

R3: *“We need to be a customer-centric organisation focusing on the customer and their needs and requirements but at the same time, we need to be focusing on our internal stakeholders and our internal resources because they are what enables the strategy, they are focused on the customers and if you do not give them the right attention and provide them with whatever they require (tools, skills, motivation), you will never get the customer-centric organisation right. So, it has to be a shared balanced view.”*

In terms of the integration of exploration efforts, two respondents from the same organisation hold slightly different views on how it should be done. While one believes integration of exploration efforts should happen continuously, the other’s view is that there must be initial separation to allow focus, with integration following later.

R4: *“We dare not create an elite group that we will push anything innovation to. The only way you integrate them is to make sure that there’s continuous collaboration between the innovation champions and the other innovators and other departments. So, that integration and that collaboration is very key to the success of the innovation output from the organisation.”*

R6: *"The future balance, is creating focus and capacity to deal with the growth focus and the efficiency focus and leaving the other internal capacity to deal with day-to-day affairs, then a little bit later, you bring the two together and you integrate over time. So, the technology will have to integrate as you develop and deploy, the people you can integrate a little bit later."*

Interestingly, one respondent mentions that with innovation efforts, the focus should shift from only being on technology to be on the other parts of the business as well.

R12: *"We also need people researching around skillsets, the broader business models and all that, maybe even go as far as venture capital research. It's not just about technology innovation."*

When considering the research team, all respondents agree that the team should be a separate team, but there is no consensus on how close the team should be to the normal operation of the business as it ranges from one respondent saying it should be very close, while another has a team located at a different location to the main business.

R3: *"I believe that research and innovation or research and development should be housed separately. They should be moving along and thinking of new ideas and finding new ways and best practices of doing things, but at the same time, they need to be very close to the organisation."*

R11: *"We got a new function called digital business enablement. And our focus is on looking at disruptive technology and how do we bring this type of technology to the work-place."*

R5: *"We just developed a new research team that really focusses on looking at opportunities."*

R4: *"My emphasis to our innovation guys is that you can't innovate in isolation. You have to innovate with a customer in mind or together with a customer and innovate together with the guys who will then implement the service to be innovating, and therefore, as much as we have created a focus area, which is the champions for innovation, but we want them to work very closely with the business."*

R12: *"So, it's a unit seated at a different location to us, it is a separate unit and it is set in an environment completely outside of our normal operations."*

One respondent holds an entirely different view of exploration. The immersion of small groups of employees in new and different environments temporarily as a way for

employees to think differently will enable them to reframe their frame of reference and have a more open-minded view of the world they observe.

> *R13: "If I was to sit here and say let's create a programme to generate knowledge. I would only do it in the context and the solution space that I'm aware of. So, I think solutions are in that space but I'm going to miss out on the solution space that I'm not aware of that are related to the questions that I have. What I want to do is take people in small groups and immerse them in places to spend one / two months to learn new things, learn new questions and learn new solution spaces. They have to unlearn what they think they knew… it's building that talent pool for the future and making sure that we align it in practice, in skill sets and so on and so forth with our counterparts out there. And that is through immersion. Training immersion."*

5.4 Results: Research Question 2

The second research question sought to understand the leadership role that executive managers in state-owned enterprises play, how they believe the leadership role will change with digital transformation and how change management is handled from a leadership perspective.

The qualitative data collected in section 2 of Annexure A were analysed and the results are presented in themes related to the interview questions.

5.4.1 Current leadership roles in SOEs

To understand how the leadership role in state-owned enterprises will transform in a digital business environment, the researcher attempted to establish a base line of what the role of leadership is in current environment in SOEs. This section presents the views of the respondents as executive leaders in SOEs.

The table below summarises the themes from the data for this interview question as well as the frequency of each theme occurring:

Table 16: Themes and frequency - Current leadership roles in SOEs

Theme	Frequency
Set the direction for the business	8
Communicate strategy to business	8
Motivate employees	6
Lead and drive execution	2
Focus on employees	2
Understand the environment and how it is changing	2
Get commitment to strategy from employees	1

The respondents, who are all executive leaders in the different SOEs, hold a collective view that first, leaders should set the direction of the organisation through the development of the corporate strategy. Second, the leadership must communicate the strategy thoroughly throughout the business.

> R4: *"I think largely is to communicate the direction of where we're going as an organisation, quite clearly...it should not rely only on the CEO to be communicating*

the direction, but the executive team, having bought into the direction, must as leaders continuously communicate the direction of the business."

Third, leaders must motivate employees and encourage them in the direction that the strategy has defined.

R1: *"…apart from the decisions that one has to take is to motivate them and to give direction and to encourage them in that direction that we are taking."*

R10: *"So our role is to manage and motivate our teams to achieve their competence areas to ensure this business works. So that's our key role."*

R9: *"…you need to create a clear direction and create a very positive vibe within the team, so that the people don't just buy into your strategy. The people should actually own the strategy and to do that, it takes a visionary type of leadership."*

One respondent comments that the challenge for leadership is getting buy-in to the strategy from the lower levels in the organisation and getting the rest of the organisation to follow.

R11: *"The leadership has to set the tone for what we're doing…develop the vision, develop the mission, identify the strategic pillars that will make us a digital organisation…often the buy-in is much easier at the top than at the bottom…what the leadership envisages and what happens on the ground are different. Leadership sets the tone, uh … and the leadership sets strategic direction, the challenge is how do you get the rest of the organisation to follow?"*

Fourth, leadership in SOEs must lead the strategy execution process by showing employees the way. This requires employees to trust the leader.

R5: *"Being participative is important…you need to be a role model…you can't lead if you are not accepted and if the people you are leading have no trust in you."*

R8: *"Obviously there's a corporate strategy and it's my task to interpret that corporate strategy and turn it to a divisional strategy…I believe that's the role, is to drive that strategy."*

Two respondents are of the view that leadership must be focused on the employees as being most important to the achievement of the company objectives and further ensuring that employees are adequately skilled.

R3: *"Today, tomorrow, in ten years' time, the role of a leader should always be on people, because people are what make the company successful. It's not the*

technology, it's not the processes, it is the people. People drive a certain agenda and they reach the objectives, through technology, through processes and enable strategies to be successful."

R4: *"…building people and making sure that they're equipped from a knowledge base point of view, and developing people and exposing them to different environments in terms of conferences and technologies."*

Three respondents have a more holistic view of leadership and comment on the future orientation required by leaders, with one respondent elaborating on the strategic role of a leader in SOEs as one taking all environmental factors into account, and using that information to develop strategies and actions for the company to remain relevant, become profitable and continue to survive.

R7: *"This includes human factors, environmental factors, policy factors, international factors and even operational factors. You must consolidate all those things and make sure you remain relevant to your customers and you make your business sustainable."*

Another respondent highlights the role of a leader as being able to lead with an understanding of the digital world and lead in the innovation space by equipping others on how to do things better. The respondent also reflects on what is required to become and entrepreneurial organisation and highlights that it takes a huge change in thinking from leadership at all levels.

R6: *"Our role as leaders is to create that enabling environment for people to learn and as leaders we must create an environment where people are free to explore things which have never been explored and not be afraid to fail."*

Yet another respondent comments that the role of a leader is to be connected with the future vision, envision the future realistically, making it a reality for the team and propelling the team to see and live that vision.

R6: *"It's a transformation of the team's minds to be able to connect with the future and prepare themselves for the future. That's what I see the current leader's responsibility to be…it's also moving the organisation and getting the organisation ready for that particular environment…this requires a participatory leadership style of transforming minds and hearts and visions."*

5.4.2 Transformation of the leadership role in the digital environment

The table below summarises the themes from the data for this interview question as well as the frequency of each theme occurring:

Table 17: Themes and frequency – Transformation of the leadership role in SOEs

Theme	Frequency
Leaders will always be required to lead the organisation and people	7
Leaders must be agile, adaptive and embrace change	5
Technology leader becomes more prominent business leader	2
Leader role shift to be more people focused	2
Create innovative work environment	1
Longer vision horizon	1
Take decisions faster	1
Agitate the business for change	1

Respondents confirm that leadership will always be required in an organisation to lead employees and the organisation in the direction the strategy requires. Although the role of the leader will always remain it should transform significantly in the way leadership is practised.

> R7: *"…what's changed is the mechanism or the information that becomes available, in what format that information becomes available, how fast it becomes available, and how the customers change."*

Two respondents further highlight that the leader responsible for technology in the business becomes more prominent in ensuring the systems and infrastructure can support the digital transformation.

> R3: *"The role of a person responsible for technology in an organisation, is an absolute critical role now and in the future, because that is the person that is going to ensure that the business keeps updated with whatever they need to do from a digital transformation perspective."*

> R5: *"…instead of the IT being a technology leader, it's becoming more of a business leader…"*

In considering how the leadership role will change in the future, in the context of digital transformation, a common theme that arise is the requirement for leaders to be agile and

adaptive in thinking, in decision-making and in their actions. One respondent notes organisations that are going to survive in the future are those that are adaptable and know what to adapt to. Management of innovation becomes something that SOEs need to focus on, which translates into information management and developing skills that can be applied in the changing environment. Leaders will need to embrace change and be cognisant of what changes are occurring in the environment to be able to identify opportunities and possibilities.

> R3: *"They need to be more agile to make decisions faster, they need to use innovation technology to make those decisions, to be more efficient and productive."*
>
> R4: *"You need to be interested in learning about changes in your business environment…everybody must be learning what's changing in the environment…"*
>
> R6: *"…the world around you is changing so quickly, if you don't adapt your strategy as you go, by the time you get to implementing your strategy, it's totally outdated…that's the biggest thing. Your strategy needs to be agile."*
>
> R9: *"Your vision is created from the sea of possibilities and opportunities that you see around you."*
>
> R10: *"The kind of agile person that can be able to, you know, accept change very easily, can live with change on a daily basis, can be able to operate at that level, I think is a new leader.*

A different view is expressed by two of the respondents, which relates to a leadership shift more towards employees in terms of motivating and energising teams to achieve more in the digital environment while decision-making will move to be more based on knowledge and information.

> R1: *"…the role that one plays in a more digital environment probably would be more the human side of things…"*
>
> R5: *"…the future leaders will lead based on the knowledge and information that they have…"*

Another view is that young innovative talent who are energetic and critical, do not like an environment that is too structured and hierarchical. Leadership will be more about how effective they will be in achieving results with employees and therefore should be open to change, thinking critically, inspiring employees and creating an open and innovative work environment to attract and retain young innovative minds.

R2: *"I see the role changing to be more strategic, to be more applying critical thinking, more innovative, being flexible as a leader."*

One respondent comments on the future focus to be more long term, what they call the "vision horizon". The future leader will need to envision things as far as ten years ahead and prepare their core to be able to adapt to that environment. Scenario planning is highlighted as a tool to assist with this long-term thinking.

R6: *"…strategic thinking and vision horizon during that time, I see that you need to really be a futuristic type of a leader, more than you are today…we're going to have to talk very long term, and the scenario mapping for that."*

One respondent elaborates on decision-making and highlights that the pace of operational decision-making needs to change in order for the organisation to be more efficient and take advantage of opportunities, which can be enabled through decentralised decision-making.

As a last thought on the future role of leadership in SOEs, one respondent comments that whereas agitators are needed in the current environment to get digital transformation going in the minds of internal and external stakeholders, the future leader will need to be more maintainers of the energy created and influencing others at a more strategic level because the hype around digital transformation has been created and therefore the role should focus more on successful execution as opposed to creation.

5.4.3 Change management

The table below summarises the themes from the data for this interview question as well as the frequency of each theme occurring:

Table 18: Themes and frequency - Change management

Theme	Frequency
Change fails due to lack of planning, communication or execution	12
Change the culture	11
Bring employees along on the change journey	8
Communicate the change	7
Have change agents	3

Digital transformation, in essence, is an extensive, multi-disciplinary change management programme and to this end, the researcher investigated how change management is conducted in SOEs.

The first theme that emerges from respondents' reflection on change management is the human aspect, more specifically bringing employees along on the change journey, making sure that they remain motivated and inspired throughout the process, while retaining a sense of purpose. Understanding the levels of change in terms of uncertainty, the concern associated with it and employee behaviour during change is critical to consider.

> R3: *"You need to understand the dynamics behind change and people's behaviours behind change and then address it in that arena."*

The second theme that emerges, which is closely related to the employees, is with regard to culture. Any change management programme challenges the culture of the organisation as the culture informs the way employees tend to react to the change. The change management plan must then identify how the change in culture and behaviour will be achieved during the process. Further, the way employees are used to working and the new way of working must also be considered as a critical element in the process of digital transformation.

> R11: *"…unless you address the culture, whatever change you are going to bring is not going to succeed."*

The third theme that emerges is communication. An important finding is the fact that different employees across the organisation react differently to change management, some will resist change, some will be happy to change, while others will be neutral and take a wait-and-see approach. Therefore, leadership must be aware of this and be able to communicate with these different groups differently. A suggested approach is to encourage those who embrace the change, involving them quickly, so that they can influence those who are neutral and those who resist the change. Leadership needs to then focus on those who resist the change, engaging them with more personalised attention by explaining why the change is necessary, how the change is going to affect them, why they need to change and the role they can play during the process.

> R2: *"How we handle change here, it's more of engaging people. There is a lot of engagement. People are engaged, we engage our organised labour about the change, we engage everyone and we even measure that change to see what are the issues on the ground."*

Further, the same employees will also not always react to different change programmes in the same way and this depends on their personal orientation to the required outcome of the change programme. As an example, some employees will easily adopt a change to technology and systems because they have an affinity towards new technology, but they might resist a change in how the organisation is structured because they are comfortable with the way the organisation is structured. Another key point mentioned is the communication of the change story, crafted in a way that employees can relate to it by articulating the current state and the desired future state. If the future state has not been "sold" to employees, there will be minimal desire to move to it. One issue mentioned pertains to the institutional knowledge of past events and the inertia of having always done things in a certain way.

> R4: *"What I find a bit challenging as well is that people will say no, but we have tried that before and it didn't work... and you have to manage a lot of those nay-sayers as you were trying to lead the people and see how you can convince them to journey with you as a leader. We also operate in a unionised environment…That's the biggest stakeholder that we have."*

Other important factors highlighted by respondents include the need to have change agents throughout the business to continuously influence employees positively towards the change, and the right change management interventions to trigger the right behaviour from employees.

In addition, more than half of the respondents feel that change management must be driven from top management and that they need to set the example in terms of behaviour, decision-making and attitude.

> R8: *"…serious change can only be driven from the top."*

> R10: *"…the success for any change management process is executive support."*

Investigating the perceived reasons for the failure of change management programmes / initiatives in SOEs reveals interesting findings that do not correspond with any specific organisational groupings. Further when respondents were requested to relate their perceived basis for the failure to manage change to either planning, communication or execution of the change management programme, none of these three arise as a dominant factor, with almost equal cause attributed to all three across the sample, highlighting their interrelatedness.

R3: *"I think more specifically on the planning side. I think the communication and the implementation, it's always part of the plan…it needs to be the top most priority in change implementation."*

R7: *"The communication part, because the communication part goes directly into the execution part, and at the execution part, some cases you meet resistance because there was not enough communication and interaction."*

R4: *"Failure in changes naturally is on the execution of those."*

R6: *"Execution this organisation does very well, so, I will place it more on the planning side of things."*

Most respondents mention that they do have change management policies and processes in place, which raises the question, whether these policies and processes are based on best practice, whether they have been customised to fit the organisation in terms of how it operates, and whether there is any value in having such company policies.

Another key observation is that if there had been several failed past change interventions in an environment, employees tend to get wary and anxious of change, especially if they have not found meaning to the change, which places additional pressure on the process and therefore requires leadership to be more robust in their thinking, planning and communication of the change initiative. This might even require a different approach.

In conclusion on this section, in terms of digital transformation, the main challenges identified from a change management perspective pertain to (1) employees not being prepared to take the leap, which is quite significant and will affect all areas of the business, due to employees (and leaders) being used to doing things in a certain way; (2) the perception that digital transformation will reduce the number of jobs, particularly in a strong labour and unionised workforce; (3) agility of the organisation to change.

R3: *"I feel that the resistance to change is going to be quite significant and it is something that needs to be managed very carefully, because we don't want to lose the skills that we have in the people right now."*

R11: *"Our challenge is often how do we enter new business models, because as a state-owned entity, we are governed by various acts and regulations, that limit our ability to just enter into a new venture."*

5.5 Results: Research Question 3

The third research question sought to understand, first, the leadership skills that executive managers in state-owned enterprises deem to be important and the skills leaders should have to be successful in the current environment; second, what leadership skill they believe would be required in future to lead in the changing business environment; third, how external knowledge and exploration efforts are integrated back into the business; and last, to assess the importance of learning from a leadership perspective and how it is being achieved in SOEs.

The qualitative data collected in section 3 of Annexure A were analysed and the results are presented in themes related to the interview questions.

5.5.1 Current leadership skills

By investigating the leadership skills that respondents regard as being important and skills leaders should have to be successful at leading in the current environment, the researcher attempted to set a base line of current leadership skills in the public sector, in order to then identify the shift in leadership skills required for the future digital environment.

The table below summarises the themes from the data for this interview question as well as the frequency of each theme occurring:

Table 19: Themes and frequency - Current leadership skills

Theme	Frequency
Adaptability, agility, open-minded	4
Emotional intelligence	4
Stakeholder management	3
Strategy and vision	3
Technical understanding	3
Execution	2

The first theme that emerges from the results deals with stakeholder management. SOEs are government-owned entities and therefore shareholding rests in the government, with a specific ministry being the shareholder representative. As such, the number of diverse stakeholders to be considered with high priority by an SOE is greater than what would be present in the private sector. A second factor that contributes to this is that fact that,

often, public sector workforces are highly unionised with strong labour movements. Due to these two factors, stakeholder management is considered to be a critical skill that current leaders in SOEs should have to lead in the environment.

> R13: *"Which means that then the stakeholder relationship management becomes a big issue."*

> R2: *"We are in the midst of a lot of stakeholders with many interests and some of these interests contradict themselves."*

The second theme that emerges relates to agility, adaptability and open-mindedness. The leader needs to be open to new and different ideas and acknowledge when they are wrong and that they are not all-knowing. This dynamic leadership, where the leader can adapt to change over time, is enabled by having a learning approach and not being afraid to fail, and when they fail, they need to fail fast and be able to learn quickly to move on to the next approach. Therefore, the leader must also create such an environment in the workplace and encourage employees to improve themselves through learning and development. Two of the respondents mention the leader's ability to find creative solutions to complex problems as a key skill.

> R4: *"I believe we need to find creative leadership. How do we learn to be creative leaders so that we can be capable to run our organisation as it faces that competitive environment?"*

> R13: *"You must be an unhindered solution-maker… you need to have leaders that are fearless creators of solutions, that aren't afraid to fail, but fail fast and learn quickly."*

The third theme that emerges is centred on emotional intelligence. Leaders must believe in their employees' abilities, be able to listen to their teams and develop their employees. This also entails general human resource management skills in terms performance management and reward systems. Closely associated with emotional intelligence are honesty, integrity, trust and ethics, where these leaders have trust in the capabilities of their teams and in return, employees will have trust in their leadership when they act ethically and with integrity. This theme further includes leaders communicating regularly with their teams and mentoring their teams. One respondent further mentions the importance of leaders' values and attitudes being aligned with those of the organisation and the objectives it sets out to achieve.

> R3: *"…having a shared sense of a value-based leadership."*

R11: "*In this company today, it's about trust, it's about integrity, it's about ethics, it's about the leader believing in its people and the people will believe in the leader."*

R1: *"…there is a saying - if you speak, you are just confirming but if you listen, you stand a chance of learning something that you didn't know."*

The fourth theme that emerges relates to strategy. Setting the direction for the organisation and understanding, where the organisation is going and furthermore to be able to articulate this to the business is a key skill identified for leaders in SOEs. Further thereto, as part of the strategic thinking process, strategic insight and scenario planning are key to enabling informed decision-making regarding the future and being able to adapt to change rapidly when faced with a challenge to the initially chosen direction. In addition, one respondent mentioned strategic awareness as key in order not to get lost in the details and maintain a holistic perspective.

R4: *"As you do strategy thinking, you have to do some scenario planning so that you can do your what if's…we must have at least analysed some possibilities of this route not succeeding and what is the next route that we should take to still succeed."*

The fifth theme that emerges in terms of the current leadership skills needed focuses on execution. The ability to be focused on the few most important objectives and getting things done builds credibility and trust in a leader's capabilities. In addition, defining clear measurements of results and holding employees accountable supports the execution. Execution further entails being able to obtain results through employees, focusing on the right things and having the dedication to put in the extra effort when needed.

R2: *"Being able to focus on the few things that you think you can do and having clarity in terms of what you are measuring, the outcomes of your measurement and then pushing on the accountability."*

The sixth theme relates to technical skills. Four respondents highlight the requirement that leaders need to be strong technically and have a strong understanding of the business. In particular, information management skills and an understanding of technology are seen as key.

R13: *"…those technical skills, they have to be strong. When you are writing and you're going through a concept, you need rigor in thinking, when you are arguing your point, you must argue it with proper rigor…"*

Lastly, some of the other skills mentioned by respondents as important in the current environment include being focused on efficiency, customer service and innovation, and being able to network, navigate the political landscape and talk-the-talk. One respondent highlights that a strategic leader needs to have a general sense of all parts of the business, including finance, operations, strategy, execution and marketing in addition to their field of expertise.

5.5.2 Future leadership skills

The table below summarises the themes from the data for this interview question as well as the frequency of each theme occurring:

Table 20: Themes and frequency - Future leadership skills

Theme	Frequency
Agility and adaptability	5
Digital skills	4
Be innovative and enable innovation	4
Value of technology	3
Be energetic, participative and empathetic	3
Have wide array of knowledge	3
Create stimulating work environment	3

The future leadership skills were researched to try to understand how the leadership skills in SOEs would need to change for the digital environment, and further to identify the areas of leadership development that SOEs should focus on to build a capable leadership team for the future business environment.

The first theme that emerges from the data analysis relates to digital skills. Most respondents mention that leaders in the digitally-transformed environment will need to have digital skills. Digital skills translate into leaders having up-to-date knowledge of technology and innovation globally, and being able to get up and do things. What is considered to be important in a digital future is more the ability to do things / build things and not merely academic training. Together with the general understanding of technology and innovation, these future leaders also need to understand human behaviour and be able to lead and equip employees with skills and knowledge for the digital environment. These leaders need to be creative and fully data-aware to unlock the benefits offered by data for improved decision-making. Their ability to develop data

analysis skills in the business will also be a key requirement of future leaders in the digital environment.

> R2: *"…digital skills of course, at least an understanding of digital skills and an understanding that this is the digital world and how these changes are going to affect the environment."*

The second theme that emerges is the value of technology. As much as leaders need to understand digital technology as per the previous theme, they also need to understand the value of technology in terms of what it means for the organisation, the employees, the customers and society at large. The value of technology can have both a positive and negative impact, and it is the leader's role to promote the positive impact and guard against the negative impact. Further, leadership must identify and apply technological advances to the benefit of humanity and think how the technology can solve human problems.

> R13: *"The leader in this environment that is pushing change so much, must have the ability to think in that world as well of how technology impacts the world in ways that they normally are not challenged."*

The third emergent theme comprises the leadership behaviour required from future leaders. The research findings reflect that leaders would need to be innovative thinkers who are supportive of the innovation efforts in the organisation, and they need to be visibly and actively participating. Further, these leaders must lead with empathy and be more employee oriented to inspire trust. In addition, leadership would need to adapt quickly to a changing environment, be energetic and willing to put in extra effort, and focus on output of employees as opposed to hours worked.

> R4: *"The future leaders have to be focusing on output a lot more…"*

> R13: *"…energy and empathy, very important in a journey like this, that you have leadership that has empathy because at the end of the day, it's about people not only from a social point of view, but from a business point of view because it's a business of people."*

The fourth theme deals with innovation. Leadership will in future need to be able to find a balance between focusing on existing products / services and doing it as well as possible, focusing on new products / services and new markets, and pursuing digital business models. The skill required is being able to maintain the current operation, while heading in a new direction. Further, the leader must recognise the need for constant

innovation and reinvention, and promote a culture of continuous improvement. The leader's ability to drive corporate innovation and entrepreneurship by creating that culture in teams will determine their success in a digital world. In addition, the leader must recognise the need to invest in research and innovation, while taking the approach of rapid development of a minimum viable product, taking it to market and continuously reiterating, improving and updating it to generate revenue.

> R9: *"The minimum working functional product … I am delivering to you and I am going to iterate and update that product until it becomes perfect."*
>
> R11: *"How do we enter into new digital business models, whilst maintaining the core?"*

The fifth theme emerging from the data relates to knowledge. Future leaders in the digital environment will need to lead, based on knowledge and not position. These leaders will be required to be generalists as well as specialists simultaneously.

> R5: *"A leader that will be leading based on his knowledge and not based on his position."*
>
> R2: *"…in fact, as a leader, you need to be a generalist and specialist at [the] same time."*

The sixth emergent theme is agility and adaptability. Future leaders will have to be adaptable, flexible, agile and open-minded, leaders who adopt technology quickly to unlock its benefits, leaders who are willing to take risks and can recognise opportunities, embrace them and execute them quickly, while accepting that they will sometimes fail. This will require a leader to have a digital mindset.

> R6: *"If you are a stick that breaks when it has to flex, you're not going to fit in the future."*
>
> R1: *"Our survival hinges very strongly on our ability to be adaptable. Our ability to be flexible. Our ability to be open minded."*

The last theme that emerges deals with the work environment. Leadership will need to create a work environment that is more flexible and is conducive to creativity. In addition, the digital environment will enable the workplace to be almost anywhere globally, and therefore, leadership will have to develop the skill of managing virtual teams, and even the leader will need to be comfortable in a mobile working environment.

R10: *"So, you will see that coming, I think, into the future that people can be mobile offices."*

One respondent comments on what they call work/life integration and the change in behaviour that will be required of leaders in future, where technology will enable leadership to always be in touch with the work environment, increasing productivity, response time and flexibility on the part of the leader.

R6: *"I think the future leader is really integrated from tools, mind, thinking, spirit perspective with his work environment, and the only disintegration point becomes pension or resignation."*

Two respondents feel that the skills needed in future are not that much different from those mentioned in the previous section, with one of these respondents clarifying that the only additional skills required will be the ability to analyse and make sense of the environment and be critical about what is observed in the environment.

R2: *"To critique what is happening around you, critique your organisation."*

Respondents highlight that leaders would need to be more security conscious due to the increased threat of cyber-attacks in a fully digitalised environment. One respondent further suggests the public sector must benchmark with other countries that have moved ahead on a large scale with digital transformation, understand best practice, challenges experienced and skills development along the journey.

5.5.3 Integration of exploration efforts

The researcher's intention with exploring how external knowledge and exploration efforts are integrated back into the business was motivated by the need to understand the impact it has on leadership ambidexterity in SOEs, specifically around the processes of managing the integration.

Five of the respondents indicate that the integration of external knowledge and exploration efforts is a weakness in their organisations, while only one respondent is of the view that their organisation does it successfully. The other respondents indicate that although the information is shared within the company, there are no real positive outcomes that arise from these efforts.

Two respondents, however, raise an interesting approach, believing that "think-tanks" and hackathons stimulate new and diverse thinking, and generate solutions to problems of the business.

R11: *"We do recognise that ideation from all sectors of the organisation is important…we started "think tanks", where groups of people would absorb new business problems…it is an incubation for ideation…the idea with Hackathons is allowing other people to bring new ideas to the table, and then having teams trying to solve the business problem."*

5.5.4 Leadership learning

The literature review in Chapter 2 highlighted the importance of learning in an organisation to develop new skills and become more adaptive. The researcher sought to understand to what extent learning is important in SOEs, which might explain the adaptive capacity of these organisations.

Three respondents confirm that learning is not an area of focus for their organisations, although one of these three respondents comments that adaptability is the only means of survival in a changing environment.

R1: *"…you cannot survive if you cannot adapt…"*

The other respondents all recognise the importance of learning. The business environment is changing at a rapid pace and digital transformation is affecting many areas of the business, creating new business models and new ways of doing things. Learning and education about this transformation can assist a business to remain sustainable. However, a challenge raised is whether the organisations are unlocking value from various learning efforts. Leadership need to educate themselves and the organisation to be fully aware of what the changing environment means for the business and various initiatives can be pursued to obtain knowledge.

One respondent mentions that leadership in SOEs does not have all the learning opportunities as found in the private sector, which does have an impact on knowledge and agility. Another respondent comments that their organisation is making a concerted effort to ensure that they have learning leaders to strengthen the knowledge base of the organisation.

R2: *"We encourage people to learn, through study bursaries and besides skills development, we encourage collaboration with universities, sending their people to study, to come here as interns. We really embrace learning."*

5.6 Conclusion

This chapter presented the research findings from the data analysis based on the three research questions in Chapter 3.

The leadership environment in state-owned enterprises is contextualised by the purpose SOEs were established for, which is to fulfil a specific mandate on behalf of the national government. Due to SOEs operating with public funds, compliance is required with certain policies and legislation to limit corruption and mismanagement of funds. It was found that this bureaucracy, the lengthy procurement processes and slow pace of decision-making is placing enormous pressure on SOEs to efficiently and effectively execute their mandate. It was further found that leaders in SOEs generally manage their environment through participative and situational leadership styles, with autocratic leadership only used in areas of the business, where democratic leadership is not able to yield results.

Digital transformation will have a significant impact on SOEs by enabling opportunities for diversification with new product development and entering new markets, and improved customer service, while improving internal efficiencies and productivity. The impact of digital transformation on the strategies, business model, culture, structure, processes and systems were found to be extensive with culture arising as one of the most important factors.

It was found that the expected changes to the business environment centred on the disruption due to macroeconomic uncertainties and increased competition, which threatens SOEs' sustainability due an internal lack of agility, flexibility and pace of adaption and execution. Digital competency at leadership and workforce levels were found to be critical in enabling the opportunities for exploration and exploitation offered by digital transformation. Exploration and exploitation efforts require separation in the business, while a dynamic balance is required from a leadership perspective to simultaneously drive these equally important areas.

When considering leadership roles, it was found that direction setting, communication, motivating and developing employees, and leading and driving execution were the most prominent in the SOE environment at the time that this study was conducted. It was further found that the leadership role will always be required to lead the organisation and its employees, but that SOE leadership of the future needs to become agile and adaptive, while embracing change and being more focused on leading and developing employees

in a future digital business environment. The leader's role in change management was found to require addressing the change in culture throughout the business.

In terms of leadership skills, it was found that adaptability, agility, open-mindedness, emotional intelligence, stakeholder management, strategic vision, technical understanding and execution are the most important skills leaders require in SOEs at the time of the study. Adaptability and agility are essential leadership skills that will also remain important in the future SOE environment; and in addition, leaders will have to develop their own digital skills and enable digital skills development in their organisations. Creating an environment that supports and enables innovation and being energetic, participative and empathetic as leaders are key leadership skills required in SOEs in a digital business environment.

The following chapter will discuss these findings.

Chapter 6: Discussion of Results

6.1 Introduction

The previous chapter (Chapter 5) presented the research results from thirteen qualitative interviews that were conducted to explore the impact of digital transformation on leadership in the public sector. In this chapter, the research findings are interpreted and discussed in relation to the literature review on leadership in a digital environment, digital strategy, leadership adaptability in the digital environment, leadership roles and leadership skills described in Chapter 2.

The three questions to be discussed are:

- How will the business environment change for SOEs due to digitalisation and digital transformation?
- How does the leadership role in SOEs need to change in the digital business environment?
- What shift in leadership skills are required in SOEs in the digital business environment?

The discussion of research results in this chapter contributes to the understanding of leadership dynamics in SOEs. It further identifies the leadership qualities required in SOEs in future to manage the complex and changing business environment in the digital age. The results presented in this report will contribute to the existing literature published on these topics.

6.2 Discussion of Research Question 1

The first research question sought to understand the nature of the leadership environment that executive managers in state-owned enterprises find themselves in, the leadership approaches they take to managing the environment and the overall impact they anticipate digital transformation to have on their environment.

This section discusses the findings from the data analysis related to research question 1 as conducted in Chapter 5 and is structured in accordance with the interview guide.

6.2.1 Leadership environment in state-owned enterprises

State-owned enterprises are created through legislation with a specific mandate to fulfil. The public sector has tighter control systems as SOEs operate with public funds and therefore are ultimately accountable to the tax payer. The market forces influencing private companies to self-correct mostly do not exist in the public sector, which supports the findings of Hvidman and Andersen (2014). These limitations in the public sector does not justify inefficiency, but require better planning and executing on the part of leadership. Key challenges in the leadership environment of SOEs were found to be slow decision-making, procurement processes, regulations and governance requirements, which are similar to the findings by Meier and O'Toole (2011).

Government mandates are the main reasons that SOEs were established and it is the responsibility of leadership in SOEs to deliver on these various mandates by providing services to the public in support of government. They are also required to drive digital transformation. This supports the work of Madhani (2014) who found that product choice for public entities are mandated by government. These mandates place pressure on the sustainability of the organisations as it requires SOEs to drive both the mandate and self-sustainability simultaneously, but with limited budgets. It was found that the pace of decision-making (Janssen & van der Voort, 2016) and authority of decision-makers (Alford & Greve, 2017) are key differentiating factors between public and private organisations.

The leadership environment in public sector organisations is highly bureaucratic which leads to slow decision-making, extensive governance controls and the resultant lack of speed in execution, which impacts efficiency and competitiveness. At the time of this study, the leadership environment in SOEs was very volatile, with uncertain futures and a high degree of unpredictability both from an economic and a political point of view. Adaptive governance (Janssen & van der Voort, 2016) can enable SOEs to improve their adaptive capacity and pace of decision-making to cope with uncertainty in the environment. By leaders accepting that they cannot possess all the knowledge, it enables them to create an environment of knowledge sharing and learning (El Sawy et al., 2016).

It is evident from the data analysis in Chapter 5, that leadership in SOEs are recognising that their environments are facing digital disruption in the near future and that the need for digital transformation is amplified. To cope with this imminent change in the business environment, leaders must become adaptable (Uhl-Bien & Arena, 2018) and create

adaptive space (Uhl-Bien & Arena, 2017) as a mechanism for these hierarchical, bureaucratic organisations to manage adaptability. By stimulating internal innovation and exploring new opportunities, what is called managing adaptive tension (Peeters et al., 2014), these organisations can promote leadership adaptability. This disruption further raises the issue that different tasks will need to be performed in future and therefore different skills will be required by leaders (Singh & Hess, 2017).

6.2.2 Leadership styles considered to be most effective

Leadership styles in SOEs have shifted in the last two decades from autocratic type leadership styles to democratic leadership styles. This shift can be explained by the change the political and macroeconomic environment has seen over the same period.

Analysis of the results revealed that participative, consultative and democratic leadership styles are most common in SOEs at the time of the study, and this is also supported by the findings of Andersen (2010). A participative leadership style, in the context of this study, entails allowing employees to contribute and making the employees part of the decision-making process so that they take ownership of decisions taken. Raharjo and Eriksson (2017) found that a change-oriented leadership style focused on growth, new and different ideas, and plans for the future are more prevalent in public entities, while this study did not find evidence to support that finding. Evidence was, however, found that the transformational and ethical leadership approaches were applied in isolated cases.

In addition, however, the study found evidence to support the findings of Harms et al. (2018) that autocratic leadership styles are still relevant and effective in situations, where the democratic forms of leadership are ineffective. The study also found evidence that SOE leaders most often apply a situational approach to leadership, using different styles of leadership as required in different situations (Adnams, 2017; Libert et al., 2015; Snowden & Boone, 2007).

A recommendation from this study is that leadership in SOEs adopt a change-oriented leadership approach, that is concerned with adapting to the changing environment, improving strategic decision-making, advancing innovation and flexibility and managing change initiatives (Fernandez et al., 2010) in conjunction with complexity leadership to develop adaptable leaders who create adaptive space to respond to environmental complexity (Uhl-Bien & Arena, 2017).

6.2.3 The impact of digitalisation and digital transformation on state-owned enterprises

Digital transformation will have a very significant impact on SOEs with opportunities to diversify offerings and pursue new markets, improve communication and internal efficiencies (Fitzgerald et al., 2014). Digital transformation will further enable the entire business to change how it operates to respond to changing customer requirements. Probably the largest impact will be on the employees of the organisation, the quality of jobs, how they conduct tasks and the type of tasks required to be done.

The following five sections discuss specific areas of interest identified from the literature review in Chapter 2.

6.2.3.1 Strategy

This study found that a clear vision of what the organisation wants to achieve through digital transformation, followed by a critical self-assessment of the organisation with regard to employees, processes and technology to achieve that vision, are the two most important factors to address when defining a digital transformation strategy. These findings support those of Eggers and Bellman (2015). Digital transformation is far more than a pure technology change in the organisation, and the digital transformation strategy addresses all areas of the business (Hess et al., 2016). The digital transformation strategy must declare the current state of the business in terms of the internal and external environment, the future state to be achieved and the roadmap with clearly identified objectives to move from the current state to the future state.

In addition, developing a clearly defined digital transformation strategy also aligns the pockets of departmental digitalisation efforts into a single interlinked strategy for the business. The opportunities for product / service diversification and internal efficiency improvements that leverage the capabilities of digital technology must be defined in the digital transformation strategy (Singh & Hess, 2017).

The study found further evidence to support the findings of Eggers and Bellman (2015) who stated that the strategy for digital transformation is lacking in most public organisations. Alford and Greve (2017) identified a business definition in terms of products and markets, the market environment, organisation capabilities and the alignment of these three factors to be key in private sector strategy. However, evidence was found in this study that SOE leaders consider these factors as key in the development of their digital transformation strategies (Alford & Greve, 2017), which

further support the statement in Chapter 1 of this report that SOEs operate in an environment that falls between the traditional public and private sectors.

Cyber-security must be addressed in the digital transformation strategy as digitalisation has the potential to expose information systems and networks to cyber-attacks, if these are not considered from the onset.

In developing the digital transformation strategy, SOEs need the start thinking with a digital mindset as digitalisation reduces the lifespan of equipment, time to market for products and workflows, and therefore, decision-making also needs to occur more rapidly. This supports the finding of Singh and Hess (2017) that stated that a different mindset is required in digital transformation.

This study found that SOEs must further place emphasis in their digital transformation strategy on skills development (El Sawy et al., 2016), culture change (Shaughnessy, 2018), needs of the customer (Eggers & Bellman, 2015) and how the strategy will be disseminated throughout the organisation (Kane, Palmer, Phillips, & Kiron, 2015).

It was further found that the context of state-owned enterprises also influences the strategy in terms a social mandate towards job creation / retention, socio-economic demands, policy, regulation, funding and investment (National Planning Commission, 2011).

For many SOEs, digital transformation is seen as a disruptor as well as an opportunity to remain sustainable, while delivering better services to the public.

6.2.3.2 Business model

Based on the data analysis in Chapter 5, the business models of SOEs will change for the internal and external environment, with both positive and negative effects.

The positive effects of redefining business models identified in this study relate to opportunities for the pursuit of new markets (Raisch et al., 2009), changing the value propositions offered to market (Alford & Greve, 2017; Berman, 2012), value improvement of current products / services (Singh & Hess, 2017), improving how customer are engaged (El Sawy et al., 2016), changing the way business is conducted and how the business is operated (Dery et al., 2017), and vertical integration (Hess et al., 2016).

The most prominent concern for SOEs, with regard to business models, was found to be future sustainability and relevance as acknowledged in the National Development Plan (National Planning Commission, 2011).

In the case of SOEs that are sole providers of their services in the country, where competition is limited due to high barriers of entry or the potential for disruption by new entrants is low, there is a greater focus, from a business model perspective, on exploitation by maximising internal efficiencies and improving productivity (Hess et al., 2016; Kane, Palmer, Phillips, & Kiron, 2015; Raisch et al., 2009).

A key finding from the analysis of the research results was how digitalisation can enable the evolution of the customer-facing function to become the innovation centre for the business, performing a dual function of pushing customers towards digital services, while also being a disruptor internally by challenging technical and operational staff to deliver on the customers' changing requirements. This phenomenon can partially be explained by the research findings of Arena and Uhl-Bien (2016); Carnabuci and Dioszegi (2015); Dixon et al. (2014); Peeters et al. (2014) on adaptation dynamic capabilities and innovation dynamic capabilities, the effect of adaptation and innovation on different networks, the daily reaction to contextual pressure and opportunity, and stimulating internal innovation and exploration of new ideas by transferring externally acquired knowledge back to the organisation.

6.2.3.3 Culture

This study found that the culture in SOEs will need to undergo a transformation in preparation for a digital business environment (Eggers & Bellman, 2015), one of the biggest challenges in the digital transformation journey for SOEs (Fitzgerald et al., 2014). Belloc (2014) argues that culture is one of the main causes for inefficiencies in the public sector, and evidence was found to support this in terms of lack of urgency and lack of consequence management.

A digital culture requires a different mindset, not only from employees, but also from leaders (Kane, Palmer, Phillips, Kiron, et al., 2015). The culture in companies that are digital from inception is very different to old, established large companies. The existing cultures in SOEs are deeply entrenched and therefore the pace at which a culture change will happen can expected to be slow. The top management plays a critical role (Singh & Hess, 2017) and must embody and actively drive the culture change, in the absence of which the culture in the organisation will not successfully change as required (Alos-Simo et al., 2017).

As digitalisation and digital transformation often involve some form of automation, which has an impact on how employees execute their duties, they need to be made aware of the role of automation. If not, employees will experience uncertainty, insecurity and even

feel threatened, and in extreme cases even sabotage the digitalisation efforts (Shaughnessy, 2018). This is due to the intention and benefit of the digital transformation not having been clearly communicated and explained (Fitzgerald et al., 2014), which highlights the need for proper and regular employee engagement to explain the journey and achieve alignment, with leadership setting the example (Shaughnessy, 2018).

Importantly, digital transformation could reduce or displace certain repetitive tasks currently performed by humans, which creates internal capacity for employees to focus more on creative types of tasks that cannot necessarily be automated or cannot be performed even by artificial intelligence. This should be the approach taken by leadership in communication as well as implementation of digital transformation.

A connected workplace environment, where employees can work in any location, not necessarily on the premises, has a positive effect on culture and promotes synergy between digitalisation and productivity (Berman, 2012).

A key finding in this study, in relation to culture, is the importance of the correct mindset and attitude to implement culture change (El Sawy et al., 2016). To change the culture, leadership must change what employees do as well as how they think, feel and behave in the work environment (Dery et al., 2017). The work environment must then further support and promote a culture of collaboration (Kane et al., 2016). A culture of innovative thinking and solving customer problems is key for SOE success, in addition to urgency, speed and agility. Leadership should further consider creating a fun and innovative space in the workplace environment where employees can socialise. Inserting dynamic and energetic employees and agitators in this environment will influence the culture to evolve to a more open and agile culture (Eggers & Bellman, 2015). Leadership in SOEs must further accept that not all individuals will be comfortable with the new culture and might move to a different organisation.

People tend to resist change (Meier & O'Toole, 2011), and therefore, a clear culture change management programme must be articulated (Shaughnessy, 2018). Digital transformation must be owned by everyone in the business as it has an impact on each and every process and the success of the digital transformation journey is primarily dependant on the culture (Seah et al., 2010). Leadership should therefore consider deferring digital transformation until the culture issue in the organisation has been addressed.

6.2.3.4 Processes and systems

The processes and systems in SOEs stifle agility and flexibility (Janssen & van der Voort, 2016). Processes will need to be adapted or redefined and regularly reviewed (Eggers & Bellman, 2015; Teece, 2016), while systems will require redesign, modification and/or replacement in a move to a digital environment (Dery et al., 2017; Singh & Hess, 2017).

This study found that technology systems will introduce the enabling technology and due to the new capabilities of the systems, the processes can be optimised or redeveloped to unlock internal efficiencies, speed, agility and new marketing channels and customer engagement platforms.

6.2.3.5 Structure

Public sector organisations face challenges in terms of flexibility of organisational structures (Meier & O'Toole, 2011). Teece (2016) recommends a regular review of organisational structures to support transformation and ability to respond to rapid changes in the business environment. This study found that the organisational structures in SOEs need to be less hierarchical to enable collaboration and increase the pace of decision-making in a digital business environment, and that matrix structures would be a better fit for SOEs in future, with certain parts of the bureaucratic structures not being required in the digital environment, which supports the concept adaptive governance (Janssen & van der Voort, 2016).

The organisational structure is a means of achieving output and enables delivery on customer requirements. The challenge identified relates to operating in silos, which translates to inconsistent customer engagements. This calls for a shift towards improved internal and external facing collaboration to ultimately service the customer as best as possible. This finding supports that of Singh and Hess (2017) that leaders need to manage and coordinate across different functional area in alignment with the digital transformation strategy.

This study further found that matrix structures require leadership and staff maturity to be effective. In terms of employees, it is proposed that skills development must focus on developing diverse and multi-skilled employees, regardless of their background, who can be deployed in diverse situations and projects. However, this requires a change in mindset by both leaders and employees (Kane, Palmer, Phillips, Kiron, et al., 2015). In addition, team-based leadership where decisions are delegated to the relevant operational level, will further promote agility (Adnams, 2017; Libert et al., 2015) and it is suggested that leaders adopt this approach to build agile teams.

6.2.3.6 Other impacts

The data analysis in Chapter 5 highlighted additional overarching findings in addition to the sub-sections discussed above. First, leaders in SOEs need to become more agile in their thinking and promote agility in the business operations to move the organisations into a digital future, which supports the findings of The Public Sector Research Centre (2015). Second, the implementation of automation must be balanced with the workforce impact, reduction of human error and efficiency gains, acknowledging that SOEs have strong unionised labour forces and entrenched cultures (Meier & O'Toole, 2011; Singh & Hess, 2017). Third, efficiency can be improved through digital transformation by automating workflows for approval and procurement processes, as also identified by Eggers and Bellman (2015). Fourth, it was found that the generational differences can play a role in digital transformation of SOEs, where older generations might be more resistant to change and younger generations would likely welcome the change. From a leadership perspective, it is proposed that younger generations by utilised in leading roles of the digital transformation to agitate the business for change.

Last, the root cause for a lack of speed and agility in SOEs was found to be lengthy and stringent approval processes, lack of accountability, lack of customer focus and fear of failure, which supports the findings of Janssen and van der Voort (2016) and Eggers and Bellman (2015).

6.2.4 Business environment changes

This section discusses the findings on the expected change to the business environment through considering opportunities, challenges and risks, as suggested by Singh and Hess (2017).

The business environment for SOEs will change in the next five to ten years. Macro-economic and social factors such as the global economy, country politics, unemployment and inflation are a cause for uncertainty, while disruption of existing business models is anticipated. Digital transformation presents an opportunity to diversify product and service offerings, but also presents a leadership challenge for the innovation of new products and generating revenue from digital infrastructure while customer requirements are changing due to the change in consumer needs. In addition, digital skills are required in all areas of the business in order for the employees and the business to remain relevant, as also found by Eggers and Bellman (2015).

6.2.4.1 Challenges for SOEs in a changing business environment

This study found that corruption is one of the reasons for the lack of speed and agility in SOEs. Corruption is a societal problem with regulation and legislation having been enacted to limit corruption and mismanagement of funds, which potentially resulted in a culture of self-preservation and being overly cautious in following governance processes, which in turn imposed bureaucracy in approval and decision-making processes, wasting time and resources. This once again highlights that leaders must consider the adoption of adaptive governance as proposed by Janssen and van der Voort (2016), where stability and accountability are balanced with agility and adaptability through building ambidextrous organisations.

The challenges experienced by SOEs that could have an impact on digital transformation, as identified in this study, are increased competition, slow rate of adoption of new technologies and new methods of working, lack of digital skills, external environmental factors, agility, skills retention, lack of enabling information and technology systems, short-term strategic focus and customer needs awareness. These challenges are similar to the challenges identified by various authors (Eggers & Bellman, 2015; Janssen & van der Voort, 2016; Meier & O'Toole, 2011; Shaughnessy, 2018; Van der Voet et al., 2016).

Different generations can have an impact on digital transformation and this is a possible cause for the lack of speed and agility in SOEs. Most leadership positions are still held by individuals from older generations and their perceived reluctance to adopt new ways of working could hamper organisations planning to digitally transform.

Strenuous and time-consuming procurement processes in SOEs were identified as a significant challenge for these organisations (Meier & O'Toole, 2011). These processes stifle the flexibility and adaptability of SOEs that operate in a competitive environment (Eggers & Bellman, 2015). Even though these processes can be expedited by the implementation of information systems, the processes must be accepted as they are part of the governance requirements for SOEs as informed by regulation and legislation. Leadership can mitigate the impact of these processes through improved and timeous planning.

6.2.4.2 Opportunities for SOEs in a changing business environment

This study found that the opportunities for SOEs in digital transformation (Singh & Hess, 2017) are mainly the use of digital technologies to diversify product and services offerings, offering improved solutions to retain existing customers and the ability to better

fulfil their mandate by creating economic opportunities for communities and decreasing the service and access gap. The pursuit of new markets, leveraging current capabilities and opportunities brought by the fourth industrial revolution are key focus areas.

6.2.4.3 Risks for SOEs in a changing business environment

SOEs face numerous risks associated with digital transformation (Singh & Hess, 2017) identified from the data analysis. The first, and most prominent, risk relates to SOE sustainability due to lack of pace, agility and flexibility in adapting to change as well as changing customer requirements informed by changing consumer demand and direct accessibility to technology by customers. The second risk identified relates to an increase in competition, as this will typically come from new entrants in the private sector with more agility. The third risk, cyber-security, is inherent to the digitalisation efforts of the entire business. The fourth risk, unemployment, relates to potential job losses due to digital transformation and the associated social instability and imbalances. The fifth risk relates to economic risk in terms of currency and market volatility. The sixth risk relates indirectly to government ownership, in terms of regulatory limitations and political unpredictability.

6.2.5 Use of technology and innovation in exploration and exploitation

This section discusses the findings with regard to the use of technology and innovation initiatives in exploration and exploitation efforts in the internal and external environments of SOEs.

The use of technology in exploitation efforts will be discussed first with the focus being on internal efficiencies. Exploitation entails the use of technology and existing capabilities to gain efficiency advantages and improve productivity (Raisch et al., 2009). Key areas that arise from the data analysis are the automation of processes to improve productivity and achieve shortened lead times in delivering services to customers; evaluating the data that is and can be generated by the business through technology and appropriate skills and the value that can be created from the data in terms of enabling better decision-making or possibly add value to existing products and services (Berman, 2012); and how technology can enable improved knowledge management to support the business operations, promote collaboration and flexibility (El Sawy et al., 2016).

It is proposed that SOEs should be focusing on process automation, data analytics and knowledge management to unlock optimal value in terms of internal efficiencies from digital transformation. From a leadership perspective, it is recommended that leaders should develop adaptation dynamic capabilities (Dixon et al., 2014), more specifically

adaptive capacity, which denotes to the ability to change (Aggarwal et al., 2015; Boal & Hooijberg, 2000).

Second, the use of technology in exploration efforts will be discussed with the focus being on new opportunities. Exploration entails the use of technology and innovation to explore new and novel ideas and pursue new opportunities that arise from digitalisation (Raisch et al., 2009). Key areas that arise from the data analysis are identification of technology trends and international best practice to improve innovation efforts; exploration of new opportunities through conceptual studies and isolated proof-of-concept initiatives to unlock these opportunities prior to operationalisation (Dixon et al., 2014); developing new products and services for current customers and creating new customers; digital skills development so employees remain relevant (Eggers & Bellman, 2015; El Sawy et al., 2016); and collaboration with suppliers and coopetition (collaboration with the competition) to unlock additional business value (Berman, 2012; Sebastian et al., 2017).

It is proposed that SOEs should be focusing on exploring new opportunities through proof-of-concept initiatives, collaboration and coopetition, as well as digital skills development. From a leadership perspective, it is recommended that leaders should develop innovation dynamic capabilities (Dixon et al., 2014), more specifically absorptive capacity, which denotes to the ability to learn and apply new knowledge in problem-solving and management (Boal & Hooijberg, 2000; Cohen & Levinthal, 1990; Volberda et al., 2010).

Third, in terms of leadership finding a balance between exploration and exploitation efforts, the data analysis revealed that leaders should be focusing on both simultaneously (Tushman & Euchner, 2015), with a dynamic balance of effort (Smith, 2014) as the exploitation enables and supports exploration, which presents an adaptability leadership challenge (Papachroni et al., 2016). It is proposed that leadership develop adaptive leadership competence (Havermans et al., 2015) to dynamically balance these two focus areas.

Fourth, in terms of integration of exploration efforts, the data analysis revealed contrasting approaches to integration. Initial separation, with integration at a later stage, supports the views of O'Reilly and Tushman (2004) and Tushman and O'Reilly (1996) on structural ambidexterity, while continuous integration supports the views of Havermans et al. (2015) on contextual ambidexterity.

The data analysis further revealed that innovation efforts should focus on all parts of the business, not only technology innovation. The separation of the innovation team from the operational business environment is a contentious issue, based on the data analysis, although literature suggests physical, cultural and financial separation (Tushman & Euchner, 2015) with the challenge arising at re-integration and coordination (Durisin & Todorova, 2012).

A further approach to be considered by leadership for innovation is immersion. This entails temporarily placing employees in small groups in new and different environments to challenge their thinking and frame of reference to develop and open-minded world view. This approach can further support collaboration and coopetition efforts.

6.3 Discussion of Research Question 2

The second research question sought to understand the leadership role that executive managers in state-owned enterprises play, how they believe the leadership role will change with digital transformation and how change management is handled from a leadership perspective.

This section discusses the findings from the data analysis related to research question 2 as conducted in Chapter 5 and is structured in accordance with the interview guide.

6.3.1 Current leadership roles in SOEs

To understand how the leadership role in state-owned enterprises will transform in a digital business environment, the researcher attempted to establish a base line of what the role of leadership is in the current environment of SOEs. This section discusses the findings of section 5.4.1 in context of the literature review in Chapter 2.

The findings from the data analysis exposed the role of leaders in SOEs as first, setting the direction of the organisation by taking all internal and external environmental factors into account and using that information to develop strategies and actions for the company to remain relevant and sustainable, and grow profitability (Adnams, 2017; Libert et al., 2015), as well as thoroughly communicating the strategy to all internal stakeholders through various types of engagement (Adnams, 2017; Libert et al., 2015; The Public Sector Research Centre, 2015).

Second, the role of the leader entails motivating employees, encouraging them in the right direction as per the strategy. It was found that the leadership challenge is obtaining

commitment, cooperation and ownership from followers at all levels for the strategy and its implementation (Adnams, 2017; Libert et al., 2015; Van der Voet et al., 2016).

Third, leadership in SOEs must lead the strategy execution process, showing the way and giving guidance along the way on how objectives can be achieved (Adnams, 2017; Libert et al., 2015). However, this requires employees to trust the leader, and therefore the leader's behaviour must also inspire trust.

Fourth, leadership executes strategy and achieves objectives through the employees and therefore the leader's primary focus must be on the well-being and skills development of the employees so that employees are adequately equipped from a knowledge and skills perspective to perform the required tasks and fulfil their roles (Fernandez et al., 2010).

Last, the leadership role in SOEs entails envisioning the future realistically, making it a reality for the team and propelling the team to see and live that vision by leading towards an entrepreneurial organisation with an understanding of the digital world and the innovation space, equipping employees to do things better (Fernandez et al., 2010; Singh & Hess, 2017). This requires a huge shift in thinking from leadership at all levels.

6.3.2 Transformation of the leadership role in the digital environment

This section discusses the findings of section 5.4.2 on how the leadership role in state-owned enterprises will transform in a digital business environment in context of the literature review in Chapter 2.

The data analysis in Chapter 5 revealed that the SOE leadership roles of leading for results, leading followers and leading organisations will always be required (Van Wart, 2013b). It further found that although the role of a leader will always remain, it must transform significantly to be effective in a digital business environment towards leading systems and leading with values (Van Wart, 2013b).

First, the role of the leader responsible for technology becomes more prominent in ensuring that systems and infrastructure can support the digital transformation (El Sawy et al., 2016) as an organisation's commitment to information technology is a key enabler for successful digital transformation (Preston et al., 2008).

Second, this study found that leaders are required to be agile and adaptive in thinking, in decision-making and in their actions (Bennis, 2013; Havermans et al., 2015). Organisations that are adaptable and understand what they need to adapt to will be the organisations that will survive in the future, and this can be achieved by creating adaptive

space (Uhl-Bien & Arena, 2017). SOEs must focus on the management of innovation, which entails information management and development of diverse and digital skills for a changing environment. Leaders must be cognisant of the changes in the business environment, be willing to learn and embrace these changes to identify opportunities (Singh & Hess, 2017; Snowden & Boone, 2007).

Third, the leadership role must be more focused towards teams in terms of motivating and energising teams to achieve more in the digital environment (Adnams, 2017; Libert et al., 2015), while decision-making needs to be knowledge and information based (Bennis, 2013; Fernandez et al., 2010). Leadership effectiveness will primarily be determined by the leader's ability to achieve results through people and therefore, leaders should be open to change, thinking critically, inspiring employees and creating an open and innovative work environment to attract and retain innovative and energetic individuals (Alos-Simo et al., 2017; Dery et al., 2017; Eggers & Bellman, 2015). To improve the pace of decision-making, it is recommended that leadership adopt adaptive governance (Janssen & van der Voort, 2016) and delegate decision-making to lower levels (Raharjo & Eriksson, 2017).

Fourth, the future leader will need to envision the long-term future and prepare the core of the organisation to adapt to that environment, using tools such as scenario planning to facilitate long-term thinking. This finding supports the work of Mankins (2017), who proposes an approach where short-term leadership decisions are taken in the context of a long-term direction which can be reached via different paths, as well as the work of Mumford et al. (2017) on the cognitive skills of leaders for complex problem-solving.

Last, as digital technology is advancing and becoming more entrenched in the business environment, leaders must become more cognisant of the potential impact of technology on people, both in the internal environment in terms of impact of employees, as well as in the external environment in terms of the potential negative impact the application of technology can have on society (artificial intelligence being one example). This calls for leaders to have an ethical leadership approach by leading with values (Van Wart, 2013b).

6.3.3 Change management

Digital transformation is an integrated, multi-disciplinary change management programme. The researcher investigated how change management is conducted in SOEs. This section discusses the findings of section 5.4.3 in context of the literature review in Chapter 2.

The data analysis revealed that leadership should first concentrate on the human aspect of change management in terms of taking employees on the change journey, motivating and inspiring them along the way so that they retain a sense of purpose (Singh & Hess, 2017). Leadership must understand that change introduces uncertainty and concern, and human behaviour during change is critical to consider.

Second, any change management programme challenges the culture of the organisation as the culture informs the way employees tend to react to the change. Leadership must ensure that the change management plan identifies how the change in culture and behaviour will be achieved (Fitzgerald et al., 2014). Transformation of the way work is done is also a key consideration that leaders need to address in the process of digital transformation.

Third, in terms of communication, the researcher found that different employees across the organisation react differently to change management with resistance, acceptance, and neutrality being the three categories of response. Leadership must be cognisant thereof that employees are also not consistent in their reaction to a multi-faceted change such as digital transformation due to varying personal orientation to the various outcomes (Tushman & Euchner, 2015). Communication efforts should be targeted accordingly to engage each category optimally. Those who embrace the change should be encouraged and involved from the onset, as change agents, to influence those who are neutral and those who resist (Eggers & Bellman, 2015). Leadership must focus on those who resist, engaging them with personalised attention and explaining the need for change, the impact, and their role and contribution in the change initiative (Hansen, et al., 2011). Change management interventions should also be used to trigger the required behaviour.

It was further found that the change story must clearly articulate the current state and the desired future state of the organisation, addressing institutional memory of past failed events and the inertia of the old way of doing things.

An important finding, which supports the work of Matt et al. (2015), is that the change should be driven from top management, setting the example in terms of behaviour, decision-making and attitude.

Failure of change management programmes in SOEs was found to be primarily caused by poor planning, poor communication or poor execution or any combination of these factors (Seah et al., 2010). Although it was found that SOEs generally have change management policies and procedures in place, their effectiveness is doubtful. Change

fatigue by employees was also found to be a possible threat to digital transformation, and therefore, leaders must properly plan and communicate the digital transformation initiative and perhaps consider unorthodox approaches.

In conclusion on this section, in terms of digital transformation, it was found that the main change management challenges to be addressed pertain to (1) preparing employees for change in all areas of the business, (2) addressing the perception that digital transformation will reduce jobs, and (3) developing agility and adaptability in the organisation.

6.4 Discussion of Research Question 3

The third research question sought to understand, first, the leadership skills that executive managers in state-owned enterprises deem to be important, and the skills leaders should have to be successful in the current environment; second, what leadership skills they believe would be required in future to lead in the changing business environment; third, how external knowledge and exploration efforts are integrated back into the business; and last, to assess the importance of learning from a leadership perspective and how it is being achieved in SOEs.

This section discusses the findings from the data analysis related to research question 3 as conducted in Chapter 5 and is structured in accordance with the interview guide.

6.4.1 Current leadership skills

By investigating the skills leaders should have to be successful at leading in the current environment, the researcher attempted to set a base line of current leadership skills in the public sector and to identify the shift in leadership skills required for the future digital environment.

Based on the data analysis in Chapter 5, the researcher found that, first, leaders must focus on their personal leadership development to grow from managing self, to managing others, to managing groups, to managing the organisation. These levels also apply to the management of transformation and mindsets in the business, starting with self-transformation.

Second, it was found that stakeholder management is a key leadership skill required in SOEs (Matt et al., 2015). As government-owned entities, SOEs have a diverse number of stakeholders, more so than the private sector, which must be considered in their business operations. Therefore, leaders in SOEs must ensure that they develop

stakeholder management skills to equip themselves to lead in the SOE business environment.

Third, leadership agility and adaptability were found to be a key leadership skill requirement to lead in a complex environment (Van der Voet et al., 2016), where SOE leaders need to be open to new and different ideas (Bolden & O'Regan, 2016) and be able to solve complex problems (Mumford et al., 2017). This dynamic leadership is enabled by a learning approach and allowing failure to learn from quickly and move on to the next approach (Snowden & Boone, 2007). The leader must also create a learning environment in the workplace, encouraging employees to improve themselves.

Fourth, this study found that people management is a critical leadership skill (Raharjo & Eriksson, 2017). Leaders must have trust in the capabilities of their teams, act ethically and with integrity, communicate regularly, mentoring their teams, listening to their teams, taking a personal interest in developing their employees, and manage performance.

Fifth, setting the direction for the organisation and articulating it to the business was found to be a key skill for leaders in SOEs (Eggers & Bellman, 2015). In addition, strategic insight and scenario planning are essential to enabling (1) informed decision-making regarding the future and (2) the ability to adapt rapidly to change. Further, strategic awareness is required to maintain a holistic perspective.

Sixth, execution was found to be an essential leadership skill in SOEs (Singh & Hess, 2017). Execution entails being able to obtain results through people and by focusing on the most important objectives and successfully achieving them, the leader builds credibility and trust with followers. In addition, clearly defined measurement criteria and accountability support execution.

Seventh, technical understanding was found to also be an important leadership skill. Leaders are required to be strong technically (information management and an understanding of technology, in particular) and have a strong understanding of the business (Kane, Palmer, Phillips, Kiron, et al., 2015).

Last, other skills that were found to be important include: an efficiency focus, customer service and innovation, being able to network and navigate the political landscape, as well as a general sense of all parts of the business, including finance, operations, strategy, execution and marketing in addition to their field of expertise.

In conclusion to this section, the most important skills an SOE leader should have were found to be personal leadership development, stakeholder management, agility and adaptability, people management, strategy, execution and technical understanding.

6.4.2 Future leadership skills required

The future leadership skills were researched to obtain an understanding of how the leadership skills in SOEs would need to change for the digital environment and further to identify the areas of leadership development that SOEs should focus on to build a capable leadership team for the future business environment.

Digital leadership skills were found to be the first leadership skills required by SOE leaders for the future business environment (Eggers & Bellman, 2015). Digital leadership skills, as found in this study, refer to leaders being conversant in global technology and innovation, and the ability to act and deliver in addition to academic training (Kane, Palmer, Phillips, Kiron, et al., 2015). Digital leadership skills include leading and equipping employees with skills and knowledge for the digital environment, being creative in problem-solving, fully data-aware to unlock benefits from data for improved decision-making, and developing data analysis capability in the business (Kane, Palmer, Phillips, & Kiron, 2015).

An understanding of the value of technology was found to be the second leadership skill required by SOE leaders for the future business environment. Leaders must understand what technology means for the organisation, the employees, the customers and society at large (El Sawy et al., 2016). The leader must manage the impact of technology, identify and apply technology to the benefit of humanity.

Digital leadership behaviour was found to be the third leadership skill required by SOE leaders for the future business environment. Leaders need to be innovative thinkers, support internal innovation efforts, be visible and participate actively, lead with empathy and people-orientation to inspire trust, adapt quickly to change, be energetic and resilient, and focused on output (Uhl-Bien & Arena, 2017).

Innovation was found to be the fourth leadership skill required by SOE leaders for the future business environment. Leadership must be able to find a balance between focusing on existing products / services, focusing on new products / services and new markets, and pursuing digital business models, referred to in literature as leadership ambidexterity (Raisch et al., 2009), which involves maintaining the current activities, while heading in a new direction. The leader must drive continuous innovation, re-invention and corporate entrepreneurship, creating and promoting an entrepreneurial

culture of continuous improvement, taking the approach of rapid development and deployment of a minimum functional product, continuously reiterating, improving and updating it to generate revenue.

Knowledge was found to be the fifth leadership skill required by SOE leaders for the future business environment. Leaders in the digital environment will need to lead, based on knowledge and not position and will be required to be simultaneously generalists as well as specialists.

Agility and adaptability were found to be the sixth leadership skills required by SOE leaders for the future business environment. Leaders will have to be adaptable, flexible, agile, open-minded, adopt technology quickly to unlock its benefits, willing to take risks, recognise, embrace and execute on opportunities, accepting the potential for failure. This will require leaders to have a digital mindset.

Last, leadership will need to create a flexible work environment conducive to creativity. Technology enables a virtual workplace and therefore leadership will have to develop the skill of managing virtual teams and even be comfortable in a mobile working environment.

6.4.3 Integration of exploration efforts

Integration of exploration efforts was investigated to explore leadership ambidexterity in SOEs. Integration of external knowledge and exploration efforts was found to be a weakness in most SOEs; however, some evidence was found of agile exploration initiatives to stimulate new and diverse thinking and generate solutions to problems of the business. These findings highlight that SOEs must have a greater focus on innovation and develop the required digital leadership skills to remain sustainable.

6.4.4 Leadership learning

The literature review in Chapter 2 highlighted the importance of learning in an organisation to develop new skills and become more adaptive. The researcher investigated to what extent learning is important in SOEs, to potentially explain the absorptive capacity (Volberda et al., 2010) of these organisations.

The data analysis revealed that some SOEs recognise the importance of learning. Learning and education about digital transformation can assist a business to remain sustainable. Leadership must educate themselves and the organisation on what the changing environment means for the business and various initiatives can be pursued to obtain knowledge.

6.5 Conclusion

The study found that the public sector is subject to stringent governance and regulatory requirements, which affect the way the businesses are operated and SOEs are impacted more by government policy and less by competitive market forces when compared to private companies, while their products and services are determined by government mandate. Key challenges were found to be slow decision-making, bureaucracy and procurement processes. Creating an environment of learning and knowledge sharing can enable SOEs to improve adaptability and rapid decision-making. Leadership adaptability and digital skills development was found to support internal innovation and external opportunity exploration.

Participative, democratic and situational leadership styles were found to be most common in SOEs, with transformational and ethical leadership styles used to a lesser degree; autocratic leadership was still used and required in situations, where democratic styles are ineffective. The study recommends that change-oriented leadership and complexity leadership approaches be adopted in SOEs to improve decision-making, and leadership flexibility and adaptability.

For a digital transformation strategy that addresses all areas of the business it was found that a clear future vision, and critical self-assessment are required when defining the strategy, which include product / service diversification and internal efficiency opportunities. The digital transformation strategy must further address digital skills development, culture change, customer needs and internal communication. Last, the digital transformation strategy must indicate how it will support the SOE in fulfilling its mandate and create social value.

Business models of SOEs are expected to alter in terms of changes to the value proposition for pursuit of new markets and vertical integration, value improvement to existing customers, improved customer engagement and business operations, which are all aimed at ensuring future sustainability.

Culture was identified as one of the biggest challenges in digital transformation of SOEs and one of the main causes for inefficiencies. SOE culture was found to be deeply entrenched and leadership must develop a digital mindset, create an appropriate work environment and take a central role in driving digital culture change, while clearly communicating the intention and benefits of digital transformation to achieve alignment with employees. Updating, redesigning, modifying and replacing processes and systems will assist in enabling a digital and efficient work environment that aids speed and agility,

while matrix structures with less hierarchy that enables improved collaboration between teams were found to be most applicable in digitally transformed SOE environment, which requires maturity and accountability at leadership and employee levels.

Macroeconomic factors and the anticipated disruption from new entrants were found to be key risks to SOE sustainability, while digital transformation was found to provide both opportunities for internal efficiency and external product / service diversification and present a leadership challenge to enable the organisation and its employees to generate revenue from digital products and services.

The use of technology and innovation was discussed in terms of exploration and exploitation efforts, and it was proposed that SOEs focus on process automation, data analytics, knowledge management, collaboration, coopetition and digital skills development. It was proposed that leadership must develop adaptation and innovation dynamic capabilities (adaptive and absorptive capacity) to be able to adapt to change, to learn and apply new knowledge in problem-solving and decision-making as well as adaptive leadership to be able to dynamically balance exploration and exploitation efforts.

In terms of leadership roles, it was discussed that (1) direction-setting through internal and external environment analysis, (2) communication of the strategy to internal stakeholders, (3) motivating employees towards execution of the strategy, (4) leading strategy execution though giving guidance and inspiring trust, (5) focusing on employee well-being and skills development and (6) realistically envisioning the future and creating the appropriate work environment are the roles that is expected of SOE leadership. It was further discussed that the role of SOE leaders in a digitally transformed environment shifts to leading with knowledge and understanding of the way the world is changing, being agile and adaptive in thinking, decision-making and execution, focusing on team energy and motivation, preparing the organisation for change and being cognisant of the ethical application of technological advances.

In terms of leadership skills, it was discussed that personal leadership development and self-transformation, stakeholder management, leadership agility and adaptability, people management, strategic insight and scenario planning, execution, technical understanding are the most important skills leadership must possess in the SOE environment. It was further found that the additional skills that SOE leaders require in a digital transformed environment include digital leadership skills, understanding the value of technology, digital leadership behaviour, innovation, knowledge and learning.

Chapter 7: Conclusion

7.1 Introduction

This research set out to explore the influence that digital transformation has on the leadership environment, leadership roles and leadership skills in the public sector, with specific focus on state-owned enterprises.

As presented in Chapter 1, public organisation do not focus on profit maximisation and it is suggested that management in public enterprises should strategically focus on value creation for the public and refining the value proposition through stakeholder engagement (Alford & Greve, 2017). Inefficiencies in SOEs result from culture, legislation and political factors and government ownership can have a positive influence on innovation in SOEs (Belloc, 2014). Organisational and public administration leadership research highlight that current leadership models do not adequately address today's leadership challenges, and note that advances in technology and its adoption has progressed at a greater pace than the associated leadership research (Avolio et al., 2014; Cordella & Tempini, 2015; Murphy et al., 2017). There is a very limited comprehension of the impact of digital technologies on leadership dynamics and this understanding is almost non-existent in the public sector context (Schwarzmüller et al., 2018; Van Wart et al., 2017).

Public organisations (which include SOEs) are facing disruption due to new environmental developments, but are historically slow to react, and it is therefore questioned, if these organisations are flexible and agile enough to survive (Janssen & van der Voort, 2016). Therefore, this study attempts to contribute to the literature void by exploring the influence of digital transformation on leadership in state-owned enterprises.

This chapter presents the conclusions to this research paper by summarising the research findings, presenting their implications, highlighting limitations to the study and making suggestions for future research.

7.2 Research Findings

This research study has successfully answered the research problem defined in Chapter 1, which was to understand the influence of digital transformation on leadership in SOEs. The most significant findings of the study pertain to the business environment of SOEs, the leadership roles that SOE leaders must fulfil and the leadership skills that SOE leaders must attain in preparation for digital transformation of the business environment and can be summarised as such.

7.2.1 Business environment

The key challenges in the business environment were found to be a lack of pace in decision-making and bureaucratic processes. These challenges are caused by two main factors. The first entails a governance requirement imposed on SOEs by their shareholder, the government. The second entails a deeply entrenched culture characterised by a lack of urgency in taking decisions, a lack of accountability and a lack of adaptability and flexibility. These factors underpin poor execution in SOEs and leadership has the most important role to play in preparing the organisation for a digital future that requires rapid response to a changing environment. Although the study found that leadership in SOEs generally employ participative and situational leadership styles, it was also found that change management is poor in SOEs. This poses an even larger risk on SOE sustainability, if the imminent changes in the business environment due to the fourth industrial revolution is considered. It is therefore concluded that leadership should adopt a combination of change-oriented and complexity leadership approaches in creating the necessary adaptive space (Uhl-Bien & Arena, 2017) between the organisational and entrepreneurial spaces. These leadership approaches will assist in improving decision-making, leadership flexibility and adaptability, while adaptive governance (Janssen & van der Voort, 2016) enable SOEs to improve adaptive capacity to cope with uncertainty in the environment.

Digital transformation has an impact on the entire organisation and must articulate the current state, the desired future state, the pathway between the two and how it must be achieved. Digital transformation strategy is severally lacking in SOEs and this is proposed to be due to a lack of understanding by leadership of what it involves. In defining a strategy for digital transformation in SOEs, they must consider how it will support achievement of the SOEs' mandate and in addition, the value created for government as shareholder. Without such justification, the shareholder might not support the funding requirements, which introduces a further challenge for SOEs.

Digitalisation enables the evolution of the customer-facing function to become the innovation centre for the business in terms of exploration efforts as simultaneously pushing customers towards the adoption of digital solutions, while through collaboration with the customer, also provides very detailed information and disruption internally to the product development teams. This enables organisations to become highly entrenched within customer businesses, evolving with customers as the SOE's products and services are being utilised and improved. This idea is partially explained and builds on dynamic capabilities research (Arena & Uhl-Bien, 2016; Carnabuci & Dioszegi, 2015;

Dixon et al., 2014; Peeters et al., 2014) and is a key finding of this study that contributes to literature on organisational adaptability.

The study further found that although digital transformation threatens to displace certain tasks currently performed by employees, this in fact must be seen as a positive factor to SOEs, as it unlocks capacity for creative tasks to be performed, thus enabling SOEs to pursue exploration without additional resource requirements for which operational budgets might not be available.

Lastly, by inserting agitators in the SOE business environment, culture change can be internalised and driven from the inside-out, which might prove to be more effective than the outside-in approach of conventional change management programmes. Generational differences affecting digitalisation is an area that requires more attention in SOEs as older generations could be a hurdle in the change of mindset required throughout the business to support the digital transformation process. It is proposed that SOEs should look at younger generations in middle and senior management positions to drive the digital transformation agenda.

7.2.2 Leadership roles to be fulfilled

Leaders in SOEs seem to understand the changes that is required across the business to enable a successful digital transformation, but is was noted that leaders seem to think that someone else and not them will have to make it happen, not necessarily realising that it starts with them and their change in mindset.

The role of leadership in SOEs was found to entail direction-setting through environmental analysis, communication, motivation, execution, employee well-being and skills development. Though these elements of the leadership role will not change in a digitally transformed environment, the leaders will be required to lead with knowledge and an understanding of the digital environment and the impact thereof on the business. Leaders will need to become agile and adaptive in thinking, decision-making and execution, while energising teams for rapid response to changes while being cognisant of the impact of technology on employees and society.

This study proposes that leadership in SOEs must place greater focus on process automation, data analytics, knowledge management, collaboration, coopetition and digital skills development, while developing their own adaptation and innovation dynamic capabilities to enable adaption to change, learning and application of new knowledge to problem-solving and decision-making.

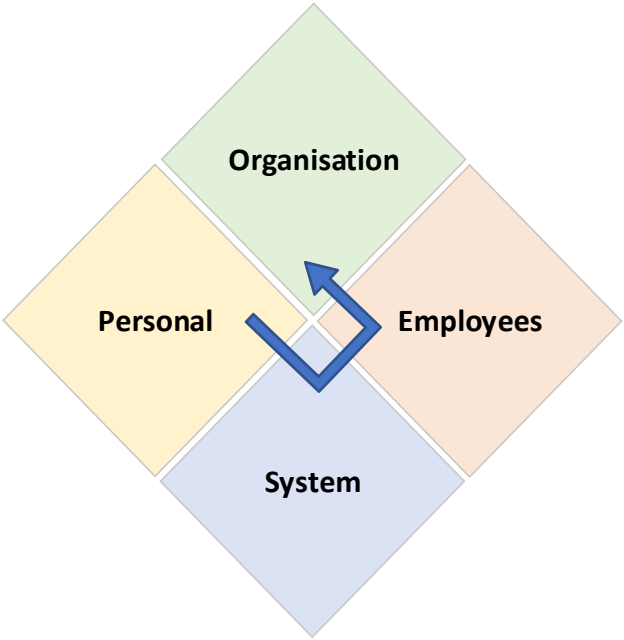
7.2.3 Leadership skills to be attained

SOE leaders have quite a significant task in preparing and leading their organisations in a digitally transformed business environment. From the onset, leaders must focus internally to attain a digital mindset and transform themselves for the digital environment before focusing on the system, the employees and the organisation. Stakeholder management, leadership agility and adaptability, people management, strategic insight, scenario planning, execution and technical understanding are the most important skills required in SOEs. Additional skills required for the digitally transformed environment are digital leadership skills, understanding the value of technology, digital leadership behaviour, innovation, knowledge of the business and the environment, and learning ability.

7.3 Proposed framework for digital leadership

Based on the findings of this study and as extension of the research conducted by El Sawy et al. (2016), Eggers and Bellman (2015), Van Wart (2013b), Kane, Palmer, Phillips, Kiron, et al. (2015), Uhl-Bien and Arena (2017), the Digital Leadership Diamond, as developed by the researcher, is proposed as a guideline for leadership in SOEs to enable digital transformation and future sustainability in their organisations.

Figure 1: The Digital Leadership Diamond



Source: Researcher

The Digital Leadership Diamond was constructed from the key themes and topics that were identified during the interviews and building on the findings from extant literature applied to this specific niche area of research. The Digital Leadership Diamond consists of four quadrants of leadership focus.

First, leaders must initiate the process with self-transformation which entails developing a digital mindset and digital leadership skills. A digital mindset is characterised by collaboration, experimentation, courage to take risks, co-creation, agility, adaptability, flexibility and strong customer focus. Digital leadership skills include being conversant in global technology and innovation, the ability to rapidly act, re-act and deliver in response to a changing environment, being creative in problem-solving, fully data-aware to unlock benefit from data for improved decision-making and the ability to manage virtual teams.

Second, leaders must focus on the system of innovation in the organisation with digital leadership behaviour, which entails being innovative thinkers, supporting and enabling internal innovation efforts, driving continuous innovation, re-invention and corporate entrepreneurship, being visible and participative in innovation, being energetic, resilient and focused on output, not only method. This quadrant further involves leadership balancing between focus on improvements to existing products and focus on new digital products and services.

Third, leaders must focus on employees by leading with empathy, integrity and accountability, equipping them with skills and knowledge for the digital environment, creating and promoting an entrepreneurial culture of continuous improvement and motivation of teams to achieve execution objects. This quadrant further includes creating a flexible work environment that is conducive to creativity and enabled by digital technology.

Last, leaders must focus on the organisation in terms of strategy and business model. From a strategy point of view, leadership need to define a digital transformation strategy that address all areas of the business, responding to opportunities and risk from the critical self-assessment and environmental scan, informed by a clear future vision, indicating how it will enable the SOE to fulfil its mandate to create social value, and detailing the development of digital skills, culture change, customer needs and internal engagement philosophy. Leaders further need to articulate how the business model will change in terms of value proposition to new customers, value improvement to existing customers, improved customer engagement and business operations. Finally, the organisation focus includes the adoption of adaptive governance to improve SOE adaptability and decision-making.

7.4 Implications for Business

This study further provides additional recommendations for leaders in SOEs:

- Leadership adaptability and digital skills development is supported by an adaptive space, which stimulates internal innovation and external opportunity exploration;
- The study recommends that change-oriented leadership and complexity leadership approaches be adopted in SOEs to improve decision-making and leadership flexibility and adaptability;
- Matrix structures with less hierarchy enables improved collaboration between teams and require maturity and accountability at leadership and employee levels;
- It is recommended that leadership must develop adaptation and innovation dynamic capabilities (adaptive and absorptive capacity) to be able to adapt to change, learn and apply new knowledge in problem-solving and decision-making as well as adaptive leadership to be able to dynamically balance exploration and exploitation efforts.

7.5 Limitations

Limitations of this research study were:

- The size of the sample was not representative of the population and the findings of the study might not be generally applicable to all SOEs as the dynamics of the business environment might be different for other SOEs;
- The cross-sectional time horizon gave a snapshot view of the situation, while a more longitudinal study might have been able to provide better insights as the companies dealt with disruptive situations and digital transformation execution;
- As the study was explorative, the conceptual model in section 7.3 had not been tested empirically for validity;
- Obtaining access to the intended leaders timeously as well as the honesty and transparency of the respondents' responses were potential limitations;
- Researcher bias in the interpretation of data gathered through interviews due to the subjectivity of the qualitative research method;
- The behaviour of the interviewer might have influenced the way in which respondents answered the questions or the interpretation of the interviewer of the responses given by the respondents based on his own frame of reference or beliefs;
- Response bias refers to the perceptions of the respondent that might have also influenced the responses to the questions;

Bias was managed by the researcher by prompting himself through objective and rational thinking and interpretation and where possible the researcher took the stance of neutrality. An outsider's perspective was taken in data gathering and thus the researcher was convinced that the data was not flawed in any respect.

7.6 Suggestions for Future Research

Based on the insights derived from the research study, the following suggestions are made for potential future research:

- Exploring the leadership problem-solving skills required in the fourth industrial revolution;
- Validation of the Digital Leadership Diamond through quantitative analysis of a larger sample of SOE leaders across multiple industries and countries;
- Exploring the applicability of the Digital Leadership Diamond in the public and private sector;
- Exploring the applicability of the Digital Leadership Diamond in SMMEs.

7.7 Conclusion

SOEs do not have a choice in digital transformation, if they want to remain relevant and sustainable. The world is changing and all SOE stakeholders must realise this as a matter of urgency. This report has highlighted the challenges faced by SOEs in digital transformation and has proposed ways to address these challenges and leverage opportunities offered thereby.

By conducting exploratory, semi-structured, qualitative interviews with thirteen executive leaders in South African SOEs and qualitative analysis, this study has established valuable insights in terms of the leadership environment, roles and skills in SOEs as it relates to digital transformation. Key findings from the study was summarised in a conceptual framework of digital leadership that may enable SOE leaders to prepare for and lead in a digitally transformed business environment.

References

Adnams, S. (2017). 5 Leadership Styles for Digital Business [infographic]. Retrieved from https://www.gartner.com/smarterwithgartner/how-to-adapt-your-leadership-style-for-digital-business-infographic/

Adner, R., & Helfat, C. E. (2003). Corporate effects and dynamic managerial capabilities. *Strategic Management Journal*, *24*(10), 1011–1025. https://doi.org/10.1002/smj.331

Aggarwal, V. A., Posen, H. E., & Workiewicz, M. (2015). *Adaptive Capacity and the Dynamics of Operational Capabilities* (2015/09/EFE). Retrieved from http://ssrn.com/abstract=2559226

Air Traffic & Navigation Services SOC Limited. (2015). *Integrated Report 2015*. Retrieved from https://www.atns.com/PDF/Performance/Annual Reports/2017/ATNS 2017 Integrated Report final.pdf

Alford, J., & Greve, C. (2017). Strategy in the Public and Private Sectors: Similarities, Differences and Changes. *Administrative Sciences*, *7*(4), 35. https://doi.org/10.3390/admsci7040035

Alos-Simo, L., Verdu-Jover, A. J., & Gomez-Gras, J.-M. (2017). How transformational leadership facilitates e-business adoption. *Industrial Management & Data Systems*, *117*(2), 382–397. https://doi.org/10.1108/IMDS-01-2016-0038

Andersen, J. A. (2010). Public versus private managers: How public and private managers differ in leadership behavior. *Public Administration Review*, *70*(1), 131–141. https://doi.org/10.1111/j.1540-6210.2009.02117.x

Arena, M. J., & Uhl-Bien, M. (2016). Complexity Leadership Theory: Shifting from Human Capital to Social Capital. *People & Strategy*, *39*(2), 22–27.

Avolio, B. J., Sosik, J. J., Kahai, S. S., & Baker, B. (2014). E-leadership: Re-examining transformations in leadership source and transmission. *The Leadership Quarterly*, *25*(1), 105–131. https://doi.org/10.1016/j.leaqua.2013.11.003

Baarspul, H. C., & Wilderom, C. P. M. (2011). Do employees behave differently in public vs private sector organizations? : A state of the art review. *Public Management Review*, *13*(7), 967–1003. https://doi.org/10.1080/14719037.2011.589614

Belloc, F. (2014). Innovation in State-Owned Enterprises: Reconsidering the

Conventional Wisdom. *Journal of Economic Issues*, *48*(3), 821–848. https://doi.org/10.2753/JEI0021-3624480311

Bennis, W. (2013). Leadership in a Digital World: Embracing Transparency and Adaptive Capacity. *MIS Quarterly*, *37*(2), 635–636. Retrieved from http://0-search.ebscohost.com.umhblib.umhb.edu/login.aspx?direct=true&db=bth&AN=87371395&site=ehost-live%5Cnhttp://0-content.ebscohost.com.umhblib.umhb.edu/ContentServer.asp?T=P&P=AN&K=87371395&S=R&D=bth&EbscoContent=dGJyMNHX8kSep684yOvsOLCmr06ep65Ss6y4Sr

Berman, S. J. (2012). Digital transformation: opportunities to create new business models. *Strategy & Leadership*, *40*(2), 16–24. https://doi.org/10.1108/10878571211209314

Bharadwaj, A., El Sawy, O., Pavlou, P. A., & Venkatraman, N. (2013). Digital Business Strategy: Toward a Next Generation of Insights. *MIS Quarterly*, *37*(2), 471–482. https://doi.org/10.1.1.216.1018

Boal, K. B., & Hooijberg, R. (2000). Strategic Leadership Research: Moving on. *Leadership Quarterly*, *11*(4), 515. https://doi.org/10.1016/S1048-9843(00)00057-6

Bolden, R., & O'Regan, N. (2016). Digital Disruption and the Future of Leadership: An Interview With Rick Haythornthwaite, Chairman of Centrica and MasterCard. *Journal of Management Inquiry*, *25*(4), 438–446. https://doi.org/10.1177/1056492616638173

Broadband Infraco. (2016). *Annual Report 2016*. Retrieved from http://www.infraco.co.za/corporate/Documents/Broadband Infraco Annual Report 2016.pdf

Bryson, J. M., Crosby, B. C., & Bloomberg, L. (2014). Public value governance: Moving beyond traditional public administration and the new public management. *Public Administration Review*, *74*(4), 445–456. https://doi.org/10.1111/puar.12238

Campbell, J. W. (2018). Efficiency, Incentives, and Transformational Leadership: Understanding Collaboration Preferences in the Public Sector. *Public Performance and Management Review*, *41*(2), 277–299. https://doi.org/10.1080/15309576.2017.1403332

Carnabuci, G., & Dioszegi, B. (2015). Social Networks, Cognitive Style, and Innovative Performance: a Contingency Perspective. *Academy of Management Journal*, *58*(3),

881–905. https://doi.org/10.5465/amj.2013.1042

Cohen, W. M., & Levinthal, D. A. (1990). Absorptive Capacity : A New Perspective on Learning and Innovation. *Administrative Science Quarterly*, *35*(1), 128–152.

Cordella, A., & Tempini, N. (2015). E-government and organizational change: Reappraising the role of ICT and bureaucracy in public service delivery. *Government Information Quarterly*, *32*(3), 279–286. https://doi.org/10.1016/j.giq.2015.03.005

Department of National Treasury. (2013). *Preparation of the Annual Report for Public Entities Guide*. Retrieved from https://oag.treasury.gov.za/Publications/01. Annual Financial Statements/04. For Entities/For fin. Year ending 31-03-2013/Annual Report Guide/Annual Report Guide.pdf

Department of National Treasury. (2018). *Public Institutions Listed in PFMA*. Retrieved from http://www.treasury.gov.za/legislation/pfma/public entities/2018-03-29 Schedules 1 to 3D.pdf

Department of Public Enterprises. (2014). DPE - Our history. Retrieved from http://www.dpe.gov.za/about/Pages/Our-History.aspx

Department of Telecommunications and Postal Services. (2017). Digital Society South Africa: South Africa's National e-Strategy - towards a thriving and inclusive digital future. *Government Gazette*, *629*(41242). Retrieved from https://www.ellipsis.co.za/wp-content/uploads/2017/04/gg41242-National-e-Strategy-Digital-Society-South-Africa.pdf

Dery, K., Sebastian, I. M., & van der Meulen, N. (2017). The Digital Workplace is Key to Digital Innovation. *MIS Quarterly Executive*, *16*(2), 135–152.

Dixon, S., Meyer, K., & Day, M. (2014). Building dynamic capabilities of adaptation and innovation: A study of micro-foundations in a transition economy. *Long Range Planning*, *47*(4), 186–205. https://doi.org/10.1016/j.lrp.2013.08.011

Dowdy, J., Rieckhoff, K., & Maxwell, J. R. (2017). How the public sector can remain agile beyond times of crisis. Retrieved May 3, 2018, from https://www.mckinsey.com/industries/public-sector/our-insights/how-the-public-sector-can-remain-agile-beyond-times-of-crisis

Durisin, B., & Todorova, G. (2012). A study of the performativity of the ambidextrous organizations theory: Neither lost in nor lost before translation. *Journal of Product*

Innovation Management, *29*, 53–75. https://doi.org/10.1111/j.1540-5885.2012.00981.x

Eggers, W., & Bellman, J. (2015). The journey to government's digital transformation, 40. Retrieved from http://d27n205l7rookf.cloudfront.net/wp-content/uploads/2015/10/DUP_1081_Journey-to-govt-digital-future_MASTER.pdf

Eisenhardt, K. (1989). Building theories from case study research. *The Academy of Management Review*, *14*(4), 532–550. https://doi.org/10.2307/258557

El Sawy, O. A., Amsinck, H., Kræmmergaard, P., & Vinther, A. L. (2016). How Lego Built the Foundations and Enterprise Capabilities for Digital Leadership. *MIS Quarterly Executive*, *15*(2), 141–166. Retrieved from http://libproxy.globalnxt.edu.my:2068/ehost/pdfviewer/pdfviewer?vid=5&sid=80bf7ba9-e67b-4f0e-8645-c307dc57cde3%40sessionmgr4008&hid=4205

El Sawy, O. A., & Pereira, F. (2013). *Business Modelling in the Dynamic Digital Space*. Berlin, Heidelberg: Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-642-31765-1

Engelen, A., Schmidt, S., Strenger, L., & Brettel, M. (2014). Top management's transformational leader behaviors and innovation orientation: A cross-cultural perspective in eight countries. *Journal of International Management*, *20*(2), 124–136. https://doi.org/10.1016/j.intman.2013.04.003

Fernandez, S., Cho, Y. J., & Perry, J. L. (2010). Exploring the link between integrated leadership and public sector performance. *Leadership Quarterly*, *21*(2), 308–323. https://doi.org/10.1016/j.leaqua.2010.01.009

Fitzgerald, M., Kruschwitz, N., Bonnet, D., & Welch, M. (2014). Embracing Digital Technology: A New Strategic Imperative. *MIT Sloan Management Review*, *55*(2), 1–12. Retrieved from http://search.proquest.com/docview/1475566392?accountid=10218%5Cnhttp://www.ub.uni-koeln.de/openurl?url_ver=Z39.88-2004&rft_val_fmt=info:ofi/fmt:kev:mtx:journal&genre=article&sid=ProQ:ProQ:abiglobal&atitle=Embracing+Digital+Technology:+A+New+Strategic+Im

Fletcher, A. J. (2017). Applying critical realism in qualitative research: methodology meets method. *International Journal of Social Research Methodology*, *20*(2), 181–194. https://doi.org/10.1080/13645579.2016.1144401

Greve, C. (2015). Ideas in Public Management Reform for the 2010s. Digitalization,

Value Creation and Involvement. *Public Organization Review*, *15*(1), 49–65. https://doi.org/10.1007/s11115-013-0253-8

Hansen, A. M., Kraemmergaard, P., & Mathiassen, L. (2011). Rapid Adaptation in Digital Transformation: A Participatory Process for Engaging IS and Business Leaders. *MIS Quarterly Executive*, *10*(4), 175–185. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=67793226&site=ehost-live

Hansen, J. R., & Villadsen, A. R. (2010). Comparing Public and Private Managers' Leadership Styles: Understanding the Role of Job Context. *International Public Management Journal*, *13*(3), 247–274. https://doi.org/10.1080/10967494.2010.503793

Harms, P. D., Wood, D., Landay, K., Lester, P. B., & Lester, G. V. (2018). Autocratic leaders and authoritarian followers revisited: A review and agenda for the future. *Leadership Quarterly*, *29*(1), 105–122. https://doi.org/10.1016/j.leaqua.2017.12.007

Havermans, L. A., Den Hartog, D. N., Keegan, A., & Uhl-Bien, M. (2015). Exploring the Role of Leadership in Enabling Contextual Ambidexterity. *Human Resource Management*, *54*(S1), s179–s200. https://doi.org/10.1002/hrm.21764

Hess, T., Benlian, A., Matt, C., & Wiesböck, F. (2016). Options for Formulating a Digital Transformation Strategy. *MIS Quarterly Executive*, *15*(2), 123–139. https://doi.org/10.1108/10878571211209314

Hood, C. (1991). A Public Management for All Seasons? *Public Administration*, *69*(1), 3–19. https://doi.org/10.1111/j.1467-9299.1991.tb00779.x

Horney, N., Pasmore, B., & O'Shea, T. (2010). Leadership Agility: A Business Imperative for a VUCA World. *People & Strategy*, *33*(4), 32–38. https://doi.org/10.1016/j.neuron.2011.07.001

Hvidman, U., & Andersen, S. C. (2014). Impact of Performance Management in Public and Private Organizations. *Journal of Public Administration Research and Theory*, *24*(1), 35–58. https://doi.org/10.1093/jopart/mut019

Janssen, M., & van der Voort, H. (2016). Adaptive governance: Towards a stable, accountable and responsive government. *Government Information Quarterly*, *33*(1), 1–5. https://doi.org/10.1016/j.giq.2016.02.003

Kane, G. C., Palmer, D., Phillips, A. N., & Kiron, D. (2015). Is Your Business Ready for a Digital Future? *MIT Sloan Management Review*, *56*(4), 37–44.

Kane, G. C., Palmer, D., Phillips, A. N., Kiron, D., & Buckley, N. (2015). Strategy, Not Technology, Drives Digital Transformation. *MIT Sloan Management Review & Deloitte*. Retrieved from http://sloanreview.mit.edu/projects/strategy-drives-digital-transformation/

Kane, G. C., Palmer, D., Phillips, A. N., Kiron, D., & Buckley, N. (2016). Aligning the Organization for Its Digital Future. *MITSloan Management Review*, (58180), 1–29.

Keaveney, S. M. (1995). Customer Switching Behavior in Service Industries: An Exploratory Study. *Journal of Marketing*, *59*(2), 71. https://doi.org/10.2307/1252074

Kim, W. C., & Mauborgne, R. (2014). Blue Ocean Leadership. *Harvard Business Review*, *92*(5).

Kor, Y. Y., & Mesko, A. (2013). Dynamic managerial capabilities: Configuration and orchestration of top executives' capabilities and the firm's dominant logic. *Strategic Management Journal*, *34*(2), 233–244. https://doi.org/10.1002/smj.2000

Lawrence, K. (2013). Developing Leaders in a Business. *UNC Executive Development*, 1–15.

Libert, B., Wind, J., & Fenley, M. B. (2015). Is your leadership style right for the digital age? Retrieved from http://knowledge.wharton.upenn.edu/article/the-right-leadership-style-for-the-digital-age/

Lichtenstein, B. B., Uhl-bien, M., Marion, R., Seers, A., Douglas, J., & Schreiber, C. (2006). Complexity leadership theory: An interactive perspective on leading in complex adaptive systems. *Emergence: Complexity and Organization*, *8*(4), 2–12.

Madhani, P. M. (2014). Corporate Governance and Disclosure Public Sector vs Private Sector. *Journal of Indian Management*, *Jan-March*, 5–20.

Mankins, M. (2017). 5 Ways the Best Companies Close the Strategy-Execution Gap. *Harvard Business Review*, (Strategy Execution).

Matt, C., Hess, T., & Benlian, A. (2015). Digital Transformation Strategies. *Business and Information Systems Engineering*, *57*(5), 339–343. https://doi.org/10.1007/s12599-015-0401-5

Meier, K. J., & O'Toole, L. J. (2011). Comparing Public and Private Management:

Theoretical Expectations. *Journal of Public Administration Research and Theory*, *21*(Supplement 3), i283–i299. https://doi.org/10.1093/jopart/mur027

Moussa, M., McMurray, A., & Muenjohn, N. (2018). A Conceptual Framework of the Factors Influencing Innovation in Public Sector Organizations. *The Journal of Developing Areas*, *52*(3), 231–240. https://doi.org/10.1353/jda.2018.0048

Mumford, M. D., Todd, E. M., Higgs, C., & McIntosh, T. (2017). Cognitive skills and leadership performance: The nine critical skills. *Leadership Quarterly*, *28*(1), 24–39. https://doi.org/10.1016/j.leaqua.2016.10.012

Murphy, J., Rhodes, M. L., Meek, J. W., & Denyer, D. (2017). Managing the Entanglement: Complexity Leadership in Public Sector Systems. *Public Administration Review*, *77*(5), 692–704. https://doi.org/10.1111/puar.12698

National Planning Commission. (2011). *National Development Plan*. *Department of The Presidency of the Republic of South Africa*. https://doi.org/ISBN: 978-0-621-41180-5

Nylén, D., & Holmström, J. (2015). Digital innovation strategy: A framework for diagnosing and improving digital product and service innovation. *Business Horizons*, *58*(1), 57–67. https://doi.org/10.1016/j.bushor.2014.09.001

O'Reilly, C. A., & Tushman, M. L. (2004). The ambidextrous organisation. *Harvard Business Review*, *82*(4), 74–+. https://doi.org/Article

OECD. (2015). *State-Owned Enterprises in the Development Process*. Paris: OECD Publishing. https://doi.org/10.1787/9789264229617-en

Osterwalder, A., Pigneur, Y., & Tucci, C. L. (2005). Clarifying Business Models: Origins, Present, and Future of the Concept. *Communications of the Association for Information Systems*, *16*, 1–25.

Papachroni, A., Heracleous, L., & Paroutis, S. (2016). In pursuit of ambidexterity: Managerial reactions to innovation–efficiency tensions. *Human Relations*, *69*(9), 1791–1822. https://doi.org/10.1177/0018726715625343

Peeters, C., Massini, S., & Lewin, A. Y. (2014). Sources of variation in the efficiency of adopting management innovation: The role of absorptive capacity routines, managerial attention and organizational legitimacy. *Organization Studies*, *35*(9), 1343–1371. https://doi.org/10.1177/0170840614539311

Perry-Smith, J. E., & Mannucci, P. V. (2017). From creativity to innovation: The social

network drivers of the four phases of the idea journey. *Academy of Management Review*, *42*(1), 53–79. https://doi.org/10.5465/amr.2014.0462

Preston, D. S., Leidner, D. E., & Chen, D. (2008). CIO Leadership Profiles: Implications of Matching CIO Authority and Leadership Capability on IT Impact. *MIS Quarterly Executive*, *7*(2), 57–69.

Public Finance Management Act 1999. (2017). Retrieved from http://www.treasury.gov.za/legislation/PFMA/PFMA 1999 as amended March 2017.pdf

Raharjo, H., & Eriksson, H. (2017). Exploring differences between private and public organizations in business excellence models. *International Journal of Operations & Production Management*, *37*(12), 1795–1816. https://doi.org/10.1108/IJOPM-09-2015-0593

Raisch, S., Birkinshaw, J., Probst, G., & Tushman, M. L. (2009). Organizational Ambidexterity: Balancing Exploitation and Exploration for Sustained Performance. *Organization Science*, *20*(4), 685–695. https://doi.org/10.1287/orsc.1090.0428

Remane, G., Hanelt, A., Nickerson, R. C., & Kolbe, L. M. (2017). Discovering digital business models in traditional industries. *Journal of Business Strategy*, *38*(2), 41–51. https://doi.org/10.1108/JBS-10-2016-0127

Saunders, M., & Lewis, P. (2012). *Doing Research in Business & Management*. Pearson Education Limited.

Saunders, M., Lewis, P., & Thornhill, A. (2008). *Research Methods for Business Students*. *Research methods for business students*. https://doi.org/10.1007/s13398-014-0173-7.2

Schwarzmüller, T., Brosi, P., Duman, D., & Welpe, I. M. (2018). How Does the Digital Transformation Affect Organizations? Key Themes of Change in Work Design and Leadership. *Management Revu*, *29*(2), 114–138. https://doi.org/10.5771/0935-9915-2018-2-114

Seah, M., Hsieh, M. H., & Weng, P. D. (2010). A case analysis of Savecom: The role of indigenous leadership in implementing a business intelligence system. *International Journal of Information Management*, *30*(4), 368–373. https://doi.org/10.1016/j.ijinfomgt.2010.04.002

Sebastian, I. M., Mocker, M., Ross, J. W., Moloney, K. G., Beath, C., & Fonstad, N. O.

(2017). How Big Old Companies Navigate Digital Transformation. *MIS Quarterly Executive*, *16*(3), 197–213. Retrieved from http://misqe.org/ojs2/index.php/misqe/article/viewFile/783/468

Sentech SOC Limited. (2017). *Integrated Report 2017*. Retrieved from http://www.sentech.co.za/sites/default/files/documents/Sentech_2017_Integrated_Report.pdf

Shaughnessy, H. (2018). Creating digital transformation: strategies and steps. *Strategy & Leadership*, *46*(2), 19–25. https://doi.org/10.1108/SL-12-2017-0126

Shenton, A. K. (2004). Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information*, *22*(2), 63–75. Retrieved from http://www.lhemoodle.ch/course/view.php?id=3229

Singh, A., & Hess, T. (2017). How Chief Digital Officers Promote the Digital Transformation of their Companies. *MIS Quarterly Executive*, *16*(1), 1–17. Retrieved from http://misqe.org/ojs2/index.php/misqe/article/view/685%0Ahttp://misqe.org/ojs2/index.php/misqe/article/viewFile/685/454

Smith, W. K. (2014). Dynamic decision making: A model of senior leaders managing strategic paradoxes. *Academy of Management Journal*, *57*(6), 1592–1623. https://doi.org/10.5465/amj.2011.0932

Snowden, D. J., & Boone, M. E. (2007). A leader's framework for decision making. *Harvard Business Review*, *85*(11), 68. https://doi.org/Article

South African Broadcasting Corporation. (2017). *Annual Report 2016/17*. Retrieved from http://www.sabc.co.za/sabc/wp-content/uploads/docs/annual-reports/SABC+AR+2016-17.pdf

South African Post Office. (2016). *Annual Report 2017*. Retrieved from https://www.ipc.be/en/reports-library/publications/member-publications/sapo_2017_ar

State Information Technology Agency. (2017). *Annual Report 2017*. Retrieved from http://www.sita.co.za/sites/default/files/documents/annual_reports/AnnualReport2017.pdf

Tassabehji, R., Hackney, R., & Popovič, A. (2016). Emergent digital era governance: Enacting the role of the 'institutional entrepreneur' in transformational change.

Government Information Quarterly, *33*(2), 223–236. https://doi.org/10.1016/j.giq.2016.04.003

Teece, D. J. (2007). Explicating dynamic capabilities: The nature and microfoundations of (sustainable) enterprise performance. *Strategic Management Journal*, *28*(13), 1319–1350. https://doi.org/10.1002/smj.640

Teece, D. J. (2016). Dynamic capabilities and entrepreneurial management in large organizations: Toward a theory of the (entrepreneurial) firm. *European Economic Review*, *86*, 202–216. https://doi.org/10.1016/j.euroecorev.2015.11.006

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic Capabilities and Strategic Management. *Strategic Management Journal*, *18*(7), 509–533.

Telkom SOC Limited. (2017). *Integrated report*. Retrieved from https://nationalgovernment.co.za/entity_annual/1372/2017-telkom-annual-report.pdf

The Public Sector Research Centre. (2015). *State-Owned Enterprises Catalysts for public value creation ? Price Waterhouse and Cooper*. Retrieved from https://www.pwc.com/gx/en/psrc/publications/assets/pwc-state-owned-enterprise-psrc.pdf

Thietart, R. A., & Forgues, B. (1995). Chaos Theory and Organization. *Organization Science*, *6*(1), 19–31. https://doi.org/10.1287/orsc.6.1.19

Transnet SOC Limited. (2017). *Integrated Report 2017*. Retrieved from http://www.transnet.net/InvestorRelations/AR2017/Transnet IR 2017.pdf

Tsai, W. (2001). Knowledge transfer in intraorganizational networks: Effects of network position and absorptive capacity on business unit innovation and performance. *Academy of Management Journal*, *44*(5), 996–1004. https://doi.org/10.2307/3069443

Tushman, M. L., & Euchner, J. (2015). The Challenges of Ambidextrous Leadership. *Research Technology Management*, *58*(3), 16–20. https://doi.org/10.5437/08956308X5803003

Tushman, M. L., & O'Reilly, C. A. (1996). Ambidextrous Organizations: Managing Evolutionary and Revolutionary Change. *California Management Review*, *38*(4), 8–29. https://doi.org/10.2307/41165852

Uhl-Bien, M., & Arena, M. (2017). Complexity leadership: Enabling people and

organizations for adaptability. *Organizational Dynamics*, *46*(1), 9–20. https://doi.org/10.1016/j.orgdyn.2016.12.001

Uhl-Bien, M., & Arena, M. (2018). Leadership for organizational adaptability: A theoretical synthesis and integrative framework. *Leadership Quarterly*, *29*(1), 89–104. https://doi.org/10.1016/j.leaqua.2017.12.009

Van der Voet, J., Kuipers, B. S., & Groeneveld, S. (2016). Implementing Change in Public Organizations: The relationship between leadership and affective commitment to change in a public sector context. *Public Management Review*, *18*(6), 842–865. https://doi.org/10.1080/14719037.2015.1045020

Van Wart, M. (2013a). Administrative leadership theory: A reassessment after 10 years. *Public Administration*, *91*(3), 521–543. https://doi.org/10.1111/padm.12017

Van Wart, M. (2013b). Lessons from Leadership Theory and the Contemporary Challenges of Leaders. *Public Administration Review*, *73*(4), 553–565. https://doi.org/10.1111/puar.12069.Lessons

Van Wart, M., Roman, A., Wang, X., & Liu, C. (2017). Operationalizing the definition of e-leadership: identifying the elements of e-leadership. *International Review of Administrative Sciences*. https://doi.org/10.1177/0020852316681446

Volberda, H. W., Foss, N. J., & Lyles, M. A. (2010). Absorbing the Concept of Absorptive Capacity: How to Realize Its Potential in the Organization Field. *Organization Science*, *21*(4), 931–951. https://doi.org/10.1287/orsc.1090.0503

Winter, S. G. (2012). Understanding Dynamic Capabilities. *Strategic Management Journal*, *24*(10), 991–995.

Annexure A: Interview guide

Research Question One:

How will the business environment change for SOEs due to digitalisation in terms of systems, processes, structure, risk, challenges and opportunities?

1.1 Please describe your current leadership environment? What leadership styles do you consider to be most effective in the current environment?

1.2. What impact does / would digitalisation and digital transformation have on your business?

- 1.2.1. How would you define a strategy for digital transformation?
- 1.2.2. Would it change your business model and how?
- 1.2.3. How would it affect the culture?
- 1.2.4. How would it affect processes and systems?
- 1.2.5. How would it affect the structure?

1.3. How will the business environment of your company change in the next five to ten years?

- 1.3.1. What are the challenges?
- 1.3.2. What are the opportunities?
- 1.3.3. What are the risks?

1.4. How is technology and innovation currently used:

- 1.4.1. To explore new opportunities that arise from digitalisation?
- 1.4.2. To improve efficiency and productivity?
- 1.4.3. How are the two focus areas balanced from a leadership perspective?

Research Question Two:

How does the leadership role in SOEs need to change in the digital business environment?

2.1 What is the strategic role of a leader in your environment currently?

2.2 How will the strategic role of a leader change in the next five to ten years based on the change in environment?

2.3 How is change handled from a leadership perspective? (Planning, Communication, Implementation)

Research Question Three:

What shift in leadership skills are required in SOEs in the digital business environment?

3.1 What leadership competences / skills are currently seen as important in the organisation?

3.2 What competences / skills would be required from emerging leaders to succeed in the next five to ten years?

3.3 How is new external knowledge and exploration efforts integrated into the company?

3.4 Is learning seen as important to leadership? If so, how is it being achieved?

Annexure B: ATLAS.ti codebook

Code	Grounded
1.1 - balance accuracy with good enough to make progress	1
1.1 - changes at different levels - PLD + OD	1
1.1 - digital business	1
1.1 - DT strategy defined	1
1.1 - leadership environment	18
1.1 - leadership style	36
1.1 - No one knows everything	4
1.1 - old vs new	1
1.1 - Openminded	2
1.1 - public vs private	3
1.1 - questioning, enquiry	2
1.1 - SOE environment	12
1.1 - SOE mandate	7
1.1 - stakeholder management	1
1.1 - Visionary vs managerial vs strategic leadership	1
1.2 - Agility	6
1.2 - Automation	8
1.2 - availability of accurate data enables improved customer relations	1
1.2 - Business model	21
1.2 - business model - centralised operations and remote management	1
1.2 - careers	1
1.2 - centralisation of skills	1
1.2 - challenges to adopt new tech	3
1.2 - culture	48
1.2 - customer expectations	1
1.2 - customer requirements change more rapidly	1
1.2 - data & trend analysis	1
1.2 - DBS different from DTS	1
1.2 - decision-making	2
1.2 - Digital orchestration	1
1.2 - diversified products	3
1.2 - divisional silo mentality	1
1.2 - DT enables us to do more with unlocked capacity	2
1.2 - efficiency	10
1.2 - Generational impact	4
1.2 - government support	1
1.2 - Impact of DT on SOE	26
1.2 - impact of unionised labour	2
1.2 - impact on workforce	2
1.2 - improve BI, Performance, response to competitors and customers	1
1.2 - improve job quality	1
1.2 - improve safety, reduce costs	1
1.2 - improve service to customer	2

1.2 - improve trust relationships with customers	1
1.2 - improved collaboration with partners	1
1.2 - increased competition	2
1.2 - knowledge management	1
1.2 - lean start-up	2
1.2 - No strategy, adhoc, disconnected	1
1.2 - performance management	2
1.2 - Processes & systems	17
1.2 - promote decision-making at lower levels	1
1.2 - reconsider physical infrastructure	2
1.2 - reduce errors	2
1.2 - regulatory	1
1.2 - remote operation / virtual work environment	1
1.2 - root cause for lack of speed and agility	6
1.2 - shift in how we do things	1
1.2 - shift in skilled resources from operation to design environment	1
1.2 - strategy	49
1.2 - structure	42
1.2 - talent management	1
1.2 - understanding individual digital journeys	2
1.2 - What is required to react	2
1.2 - why to have a DT strategy	1
1.2 - younger generations bring different culture	1
1.3 - balance competitiveness, jobs, efficiency	3
1.3 - Business environment	16
1.3 - Cause for lack of speed and agility - corruption	4
1.3 - Cause for lack of speed and agility - generational	7
1.3 - Cause for lack of speed and agility - procurement	3
1.3 - challenge - speed of execution	3
1.3 - challenges	26
1.3 - challenges - legacy assets	1
1.3 - consolidation	1
1.3 - customer demand shifting away from core business and competence	1
1.3 - lagging behind changing external environment	1
1.3 - new technologies becoming more reliable	1
1.3 - opportunities	21
1.3 - opportunity for international service expansion	3
1.3 - pace of technology adoption	1
1.3 - reducing traditional revenues and increasing legacy cost	1
1.3 - Regulated environment - tariffs	1
1.3 - Regulatory impact - positive	1
1.3 - reskilling	3
1.3 - risks	22
1.3 - shift in customer requirement	1
1.3 - shift to value chain integration	1

1.3 - SOE rate of adoption	3
1.3 - threat of increased competition enabled by technology	2
1.3 - traditional business declining	1
1.3 - utilise government mandate as opportunity to start DT	1
1.4 - balance between internal and external	5
1.4 - balanced focus on customer and people	1
1.4 - balancing exploration and exploitation	1
1.4 - can't balance with same resources, requires capacity	1
1.4 - dedicated team	1
1.4 - expand exploration beyond technology	1
1.4 - explore efforts separated or not	15
1.4 - immersion	2
1.4 - innovation strategy	4
1.4 - integration of explore efforts	8
1.4 - market driven product design	1
1.4 - need focused capacity	1
1.4 - no constraint on using technology	1
1.4 - resources	2
1.4 - shift from products to services	1
1.4 - simultaneous explore / exploit	4
1.4 - technology & innovation together	1
1.4 - use of technology for collaboration	1
1.4 - use of technology for exploiting	14
1.4 - use of technology in exploring	7
1.4 - use of technology to achieve efficiency	3
1.4 - use of technology to be future fit	2
1.4 - use of technology to train and test	1
2 - emphasis on people	3
2 - What leaders should do	7
2.1 - current leadership role	10
2.1 - role of a leader currently	27
2.2 - future leadership role	22
2.2 - Leverage capabilities (skills, infrastructure, resources) to achieve new things	1
2.2 - role of leader - shift	13
2.3 - change communication	2
2.3 - change execution	2
2.3 - change management	27
2.3 - change policy and processes	1
2.3 - continuous engagement	1
2.3 - Failure to manage change	11
2.3 - Institutional inertia limiting adoption of change (this is how we have always done it)	1
2.3 - leadership support	1
2.3 - SOE challenge in changing	10
3.1 - current leadership skills	43

3.1 - current leadership skills - potential quote	1
3.2 - future leadership skills - potential quote	1
3.2 - future leadership skills needed	50
3.2 - managing virtual teams	1
3.3 - failure to integrate new external knowledge	9
3.3 - Ideation	3
3.3 - integration of new knowledge	11
3.3 - knowledge management	2
3.3 - value of external knowledge	1
3.4 - Absence of learning environment	3
3.4 - Adapt to survive	1
3.4 - importance of learning	4
3.4 - importance of learning in SOE	7
3.4 - Learning organisation	9
3.4 - Learning workforce	2
3.4 - Train existing staff to do new things	1
3.4 - train staff to do various different things	2
4th Industrial Revolution	1
Bureaucracy	1
changing work environment	1
Deliberate push to DT	2
ethics & values	3
financing innovation	2
future research	1
Governance	22
Lack of accountability	1
lack of decision-making - power and politics	1
Leadership readiness for DT	3
Legal framework to enable success	2
Make public sector more attractive	1
Placement of leadership	2
Political influence	7
Politics, economy, social	4
SOEs and government aligned on digital strategy	2
training	3
unlearning	1

Annexure C: Ethical Clearance

Gordon Institute of Business Science
University of Pretoria

19 July 2018

Venter Marius

Dear Marius

Please be advised that your application for Ethical Clearance has been approved.

You are therefore allowed to continue collecting your data.

Please note that approval is granted based on the methodology and research instruments provided in the application. If there is any deviation change or addition to the research method or tools, a supplementary application for approval must be obtained

We wish you everything of the best for the rest of the project.

Kind Regards

GIBS MBA Research Ethical Clearance Committee

Gordon Institute of Business Science
Reg. No. 99/19816/08

26 Melville Road, Illovo, Johannesburg
PO Box 787602, Sandton, 2146, South Africa

telephone **(+27) 11 771 4000**
fax **(+27) 11 771 4177**

website **gibs.co.za**
University of Pretoria

Annexure D: Informed Consent Form

I am currently completing my MBA at GIBS and am in the process of collecting data for the research project. The purpose of the study is to increase the understanding of the influence of digital transformation on future leadership in the public sector and I am trying to find out more about the shift in leadership roles and skills of senior management in SOEs. The interview will be recorded and is expected to last about an hour, and will help us understand how the business environment will change for SOEs due to digitalisation. ***Your participation is voluntary and you can withdraw at any time without penalty****. All data will be reported without identifiers. If you have any concerns, please contact my supervisor or me. Our details are provided below.*

Researcher:	*Supervisor:*
Marius Venter	*Andre Vermaak*
venter.marius@gmail.com	*andrepv@mweb.co.za*
+27 73 911 6142	*+27 83 308 0235*

Signature of respondent: _____

Date: _____

Signature of researcher: _____

Date: _____